PHYSICAL THERAPY

The Physiotherapy Review

Vol. X No. 4

Table of Contents

	Page
Fractures. *Frederick C. Kidner, M. D.*	370
The Use of Hydrotherapy at St. Elizabeth's Hospital, Washington, D. C. *William Matthew Kenna, M. D.*	376
After Care of Poliomyelitis. *Alice Lou Plastridge*	377
The Physical Therapy Situation. *James T. Watkins, M. D.*	381
Physical Therapy for the Painful Shoulder. *Norman Edwin Titus, M. D.*	383
Treatment of Infected Wounds by Means of Brine Baths. *Mabel E. Holton*	387
The Nurse's Responsibility in the Treatment of Chronic Diseases by Radiation from the High Intensity Carbon Arc. *Margaret Valentine, R. N.*	389
Editorials	392
Convention Reports	395
Abstracts	404

Published Bi-Monthly By
THE AMERICAN PHYSIOTHERAPY ASSOCIATION
JULY-AUGUST, 1930
Convention Number

Chapter Directory

AMERICAN PHYSIOTHERAPY ASSOCIATION, Cleveland Chapter
President, Miss Helen Kaiser, Mt. Sinai Hospital.
Secretary, Mrs. Margaret Cleveland, Lakeside Hospital.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Chicago Chapter
President, Miss Jessie L. Stevenson, 6225 University Avenue.
Secretary, Miss Jennie Strand, 11335 Stewart Avenue.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Minnesota Chapter
President, Miss Marian Denny, Gillette State Hospital, St. Paul.
Secretary, Miss Helen Foss, 1826 La Salle Ave., Minneapolis.

AMERICAN PHYSIOTHERAPY ASSOCIATION, New York Chapter, Inc.
President, Mary Hibbler, 345 East 68th St., New York City.
Secretary, Miss Elizabeth P. Gillingham, 199 Walnut St., Montclair, N. J.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Northern California Chapter
President, Miss Julia Tuggle, 501 Taylor St., San Francisco.
Secretary, Mr. Carl Walgren, Marine Hospital, Presidio, San Francisco.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Southern California Chapter
President, Miss Lucile R. Grunewald, 1411 Mar Vista Ave., Pasadena.
Secretary, Miss Lilly Valley, 2405 Crenshaw Blvd., Los Angeles.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Oregon Chapter
President, Mrs. Vera Schwartzman, 712 Lincoln St., Portland.
Secretary, Miss Jennie Hunter, 1185 East Stark St., Portland.

AMERICAN PHYSOITHERAPY ASSOCIATION, Rhode Island Chapter
President, Mr. Howard Coughlin, 45 Dartmouth Ave., Providence.
Secretary, Miss Helen L. Babcock, 32 Wesleyan Ave., Providence.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Wisconsin Chapter
President, Miss Mildred Elson, 542 Jackson St., Milwaukee.
Secretary, Miss Florence L. Phenix, 282 Pleasant St., Milwaukee.

DISTRICT OF COLUMBIA PHYSIOTHERAPY ASSOCIATION
President, Miss Elinor Jones, Walter Reed Hospital.
Secretary, Mrs. Frieda Gassin, U. S. V. B. Hospital No. 32, 2650 Wisconsin Ave.

MASSACHUSETTS PHYSIOTHERAPY ASSOCIATION, INC.
President, Miss Mary McMillan, 120 Westbourne St., Brookline.
Secretary, Miss Lucy Marshall, 1638 Commonwealth Ave., Boston.

PENNSYLVANIA PHYSIOTHERAPY ASSOCIATION, INC.
President, Miss Lucy Windle, 1729 Spruce St., Philadelphia.
Secretary, Miss Louise Jetter, 17 East Style St., Collingswood, N. J.

WASHINGTON PHYSIOTHERAPY ASSOCIATION
President, Miss Elsie Child, 311 Douglas Building, Seattle.
Secretary, Miss Dorothea Sorenson, 2107 Warren Avenue, Seattle.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Michigan Chapter
President, Miss Anna L. Mulcahey, 280 Harmon Ave., Detroit.
Secretary, Miss Norma Graham, 25 East Palmer Ave., Detroit.

AMERICAN PHYSIOTHERAPY ASSOCIATION, New Jersey Chapter
President, Miss Jean Smith, 5 Berkeley Heights Park, Bloomfield.
Secretary, Miss Emily J. Griffin, 21 Church St., Montclair.

An Important Consideration in the Selection of Diathermy Apparatus

HAVE you observed the increasing number of references, in current medical literature, to the use of diathermy in the treatment of conditions where it is desired to create heat deep within the tissues?

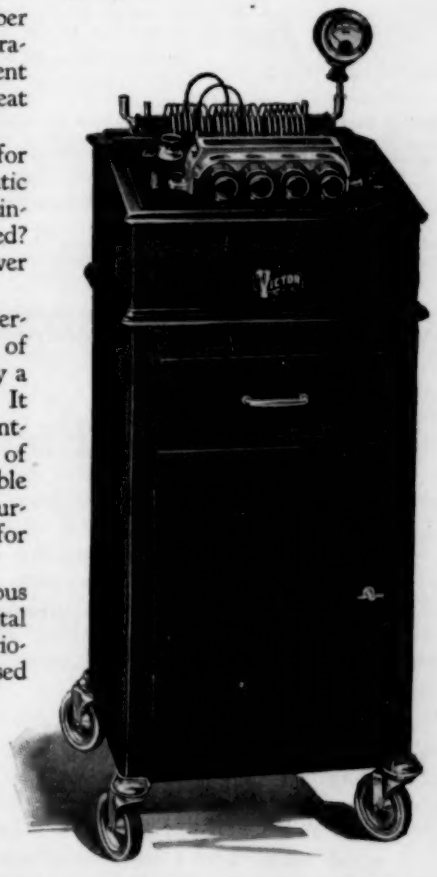
Physicians everywhere are reaching out for more information regarding this therapeutic energy which is being written into so many interesting clinical records. What do I need? What shall I buy? These are questions over which they ponder.

Our answer is simply this: If you are determined not to limit yourself in the range of therapeutic applications with diathermy, buy a machine of major calibre at the very outset. It will save you much time and many disappointments, as some of the most important uses of diathermy require a machine of considerable capacity, delivering the essential quality of current under refined control, and designed for long and continual service.

Consider the following record of strenuous service and stability, as submitted by a hospital (name on request) in which the Victor Vario-Frequency Diathermy Apparatus is being used in a series of special cases:

275 diathermy treatments, each averaging 2½ continuous hours, operating under a load of 3250 to 3600 milliamperes. (The machine is still operating at 100% efficiency.)

Your short cut to the utmost satisfaction in the use of diathermy in your practice lies in the purchase of a Victor Vario-Frequency Diathermy Apparatus—and we can prove it.



GENERAL ELECTRIC
X-RAY CORPORATION
2012 Jackson Boulevard Chicago, Ill., U. S. A.
FORMERLY VICTOR X-RAY CORPORATION

Join us in the General Electric hour, broadcast every Saturday evening over a nationwide N. B. C. network.

General Electric X-Ray Corporation,
Dept. 159, 2012 Jackson Blvd.,
Chicago, Ill.
Please send me description of
☐ Vario-Frequency Diathermy Apparatus
☐ Booklet of Abstracts "Indications for Diathermy"

Dr......

Address.....

.....

VOLUME X NUMBER 4

The Physiotherapy Review

JULY-AUGUST, 1930

PUBLISHED BI-MONTHLY BY THE AMERICAN PHYSIOTHERAPY ASSOCIATION

Publication Office: 404 N. Wesley Ave., Mount Morris, Ill.
Editorial Office: 21 Church St., Montclair, N. J.

Editor-in-Chief:
DOROTHEA M. BECK,
21 Church St., Montclair, N. J.

Entered as second-class matter Oct. 6, 1927, at the post office at Mount Morris, Ill., under the Act of Aug. 24, 1912.

General Manager:
GERTRUDE BEARD,
2449 S. Dearborn St., Chicago, Ill.

Address all correspondence for publication to the Editor.

Membership in the American Physiotherapy Association is five dollars a year, including two dollar subscription for THE PHYSIOTHERAPY REVIEW. Single copies 35 cents. Subscription for non-members to THE PHYSIOTHERAPY REVIEW $2.50 a year. Single copies 50 cents

Fractures

By Frederick C. Kidner, M. D.

Stenographer's report of Dr. Kidner's illustrated talk given before the Ninth Annual Convention of the A. P. A., Detroit, Mich.

I just want to add that I have some booklets here which are just out, giving a description of the place, and if any of you care to have one at the close of the work, I will be very glad to give them out as far as they go, and if more want them than I have booklets here, and will leave me your names, I will be glad to send them to you when I get back to Warm Springs.

Miss Mulcahey: Our next talk this afternoon is to be given by a man who is not only well known in Detroit, but is also recognized throughout the this country as an authority on all matters pertaining to orthopedic surgery.

Doctor Kidner has chosen a subject in which we are all vitally interested, fractures, and I am sure you are anxious to hear what he has to say. Doctor Frederick C. Kidner, of Detroit.

It is a great pleasure to talk before this distinguished audience, and with a group of people on whom I am thoroughly dependent for my work as an orthopedic surgeon.

The relationship between the surgeon and the physiotherapist is nowhere closer than it is in the field of fractures. The cure of a fracture depends of course first on reducing it to good position, but after that the whole future of that fracture depends on physiotherapy, not necessarily given by a physiotherapist, but given either by the patient or by a physiotherapist or by a surgeon, if you can not get a trained person to do it.

What I am going to do this afternoon, I have picked a few fractures at random, and I am going to use them as texts for an attempt to co-relate the surgical side of the fracture with the physiotherapeutic side. Most of the fractures you see before you are extremely bad. I trust some of them were put in better shape before they were finally left to run about the world, but they are typical of the various sorts of problems which we run up against.

Now I have spoken in this hall before, and I know that it is almost impossible to make myself heard in it. If I speak too loud, which is often the case, let me know. If I speak too softly let me know, because one can move three feet in this room and entirely change the zone of hearing area, so please do not hesitate to tell me if I am not making myself understood.

Now we will see the first slide. May we have the lights out?

The first slides I am going to show you are those of damage to the wrist. The so-called Colles' fracture, a fracture across the base of the radius, with the lower

fragment tipped backward, and impacted on the lower end out sharp, a fracture which if it is not corrected is thoroughly disabling, because it places the hand at the wrong angle to the arm, that is the articulation between the wrist and the lower end of the radius is tilted backwards with the result that the length, that the relative length of the extensor tendons becomes greater, and the flexor tendons become relatively shorter, with the result that mechanically neither of them are able to do their work properly.

There is a secondary difficulty about this fracture, that there is a prominence formed in the front, at the front of the radius where the callous occurs, over which the flexor tendons are obliged to work, and are pressed upon, and are therefore limited in their motion. Reduction is then absolutely necessary.

Reduction must also first include over-reduction, that is there must be over-correction of the fracture before there is permanent correction. The next slide is a side view of the same thing. As you see here, the articulation between the wrist and the lower end of the radius is tilted backwards. There is a prominence at this point here over which the flexor tendons have to pull. It is then necessary to forcibly swing that whole wrist way forward and make this line here transverse, and it must be transverse in both directions.

A very bad injury to the wrist, a complete dislocation of the metacarpals on the distal ends of the carpals, a dislocation and a fracture of some of the bones here, a completely disabling injury unless reduction is completed, an injury which involves in this case the joints between the last four metacarpals and the wrist, an injury which if that re-position is not very accurate and complete will permanently disable a large proportion of the action at the wrist, and one which after reduction will need the most careful and accurate physiotherapeutic care.

A Colles' fracture corrected. This is a Plaster Paris splint on the back of the hand. Here is the radius coming down like this. You can see the impaction has been entirely broken up. There is the actual over-correction. There is a separation at this point posterially, and a little crowded together in the front. The fracture line at this point is absolutely transverse to the shaft of the radius. The hand is put up in flexion, of which I will speak to you in just a moment.

A Colles' fracture of the higher type, where correction has not been done. The radius is broken two inches above the articular seat, and is impacted, but is not a real Colles' fracture, but a fracture which if it is unreduced will not cause as serious results as a Colles' fracture, because the difference in distance from here to here and from here to here is less great in this type of fracture than it is in the true Colles. In other words, the angle is less sharp.

A Colles' fracture, the other view. As I told you, the articular surface of the radius must be transverse in both directions. As a matter of fact the outer angle should be a little bit lower than the inner. The hand should be as it is not in this case, transposed to the ulna. As you see, the lower tip of the ulna is broken off, the internal lap of the wrist has been ruptured, and the hand has been displaced outward. That again is a most disabling injury, most disabling condition, because there is loss of stability in the ulna side of the wrist joint.

We found although the radius has been well corrected, as in this line here, the hand has not been thrown far enough out in that direction.

A fracture just above the wrist, showing what nature will endure. A fracture at this point, which was evidently not successfully held by any ordinary apparatus, and so a steel plate was put in with screws. The screw has gone through the line of fracture. The plate is loose, and nature has disdained to put in any ordinary callus. She has put all her callus in way over here on the other side of the bone, so as to get away from the insult of this metal plate and these metal screws.

Now if you will take those out for a minute, I will talk about these wrists. Now then I have tried to show you the mechanism of some of these fractures around the wrist. I have tried to explain to you that the surgeon is absolutely responsible for restoring the normal anatomical relations at the wrist joint. There is no part of the body in which this is more important. True anatomical restoration is almost obligatory in fractures of the wrist and of the lower end of the radius. If that is not obtained, if it has not been made, then in older people permanent disability in the wrist practically always occurs.

In younger people a certain amount of derangement and deformity will be compensated for by the elasticity of the tissues of youth. We all know of people who have broken their wrists in childhood, and never had them set, who have little or no difficulty except perhaps a little comparative weakness.

Now suppose any one of these injuries has been properly corrected. We used to use wooden splints, we are more and more using Plaster Paris. We used to use circular plaster paris and now we are using more and more anterior and posterior splints made of Plaster Paris. If this reduction has been properly done under a local anasthetic or under a general anasthetic, within a few hours of the reception of the injury, swelling will never become a problem, if the Plaster Paris splints are properly applied. If, however, we do not get the fracture until swelling has occurred, we must apply our Plaster Paris or whatever other dressing we use, sufficiently loose so further swelling will not cause pressure sores or will not cause paralysis or will not cause adhesions in the tendons. That is the most important thing to watch after the fracture has been reduced.

Suppose then it has been reduced, and there is not much swelling and the bone injury has not been great. We say then how well does the fraction hold itself in position naturally? Did it take considerable effort to apply our splints in such a way that the fragments did not slip off each other? If we say there was very little tendency to displacement, then we realize that the bone healing will be relatively rapid, because there is no tendency of the muscles to displace the fragments, and we can say that it will be safe to remove our splints within four or five days, and begin treatment.

Now I am rather radical on physiotherapeutic treatment. I do not believe in folderols and fiddle de dees. I think that the two hands of the physiotherapist, with heat, either moist or dry, are the two most important agents that we have to use. I believe that diothermy is splendid for the patient's mind, but I don't believe it has much effect on the patient's arm.

I believe that electricity on certain occasions will exercise muscles which the mental effort of the patient cannot exercise, but in all my talk about physiotherapy, be sure unless I say something different that what I mean by physiotherapy is what Doctor Osborne spoke of, muscle action under careful supervision, massage of the various types, and heat.

Now then as I say, if we find there is very little tendency for one of these wrists to re-displace, at the end of four or five days it is quite safe to remove one or

both of the splints, and allow our physiotherapist to have a whack at it.

What does she do? First she warms the tissues thoroughly, she bakes them, she gets them good and hot, red, and perspiring, if possible. Then by the most gentle of manipulation, she endeavors to increase the circulation through the wrist still further, in an effort to absorb the blood clot and hemorrhage which has occurred at the point of the fracture, and allow the release of pressure which comes from the hemorrhage, and lastly she begins the slightest sort of passing motion of the fingers. That is at four or five days, mind you.

The day after that, if no harm has been done, she increases the amount of heat. She increases slightly the heaviness of her massage, she goes for deeper channels and she gives a little more passive, but she also begins the active motion, and active motion is the keynote of the restoration of the tendons and the muscles in these fractures of the wrist.

She then goes on from day to day slightly increasing the amount of work she gives the patient, until by the twelfth or fourteenth day, by the tenth or twelfth day it is possible to remove one of the splints entirely, and here comes the opportunity for the physiotherapist to say to surgeon, or to save to the surgeon the endless difficulty that sometimes arises, and sometimes even lawsuits.

There are certain fractures of the lower end of the radius which seem to be very firm, which will go through the very early stages of treatment without slipping, and which will get to the tenth or twelfth day, as I say, apparently firm, apparently satisfactory, and we remove one of the spints. Unless the physiotherapist is extraordinarily observant and extraordinarily careful, in about one out of fifteen of such cases, along about the tenth to the twelfth day if one splint is removed, she will observe a gradual recurrence of the original form. To take a specific case, much to my sorrow, only a month ago, I had a Colles' fracture which I reduced according to the X-rays. It seemed to stay in place. I started with the physiotherapeutic regime on the tenth day, and took off one splint, and I regret to say my physiotherapist did not notice what was going wrong. We had a considerable recurrence of the original deformity, in other words the removal of the support, partial removal of the support, in a case which seemed to be firm, was too much for the type of callus that that individual was making.

The ordinary individual would have stayed firm and not been displaced. So I warn you that in these cases you must be on the constant lookout when you begin to remove your support, for recurrence of the deformity. If no further recurrence of the deformity occurs, then by the 15th, 16th or 18th day we can take off all support. Some men do it earlier, but I don't believe in it. I think it does not hurry the recovery of the case.

We can then take off all support and then we can go on to cure through less massage, more heat, less passive motion and more active exercise of the muscles. That then is the course of events in the ordinary fracture of the lower wrist, which does not tend to displace.

If, on the other hand, there has been bad displacement and if the tendency after reduction has been to displace very promptly, then we have to put off our physiotherapy interference for a longer time. We have to go on, we have to leave the wrist in firm fixation for as long as two weeks. This will do no harm if we start massage.

Now why is physiotherapy so important in these cases? For the reason that if the circulation is not maintained properly, as the callus begins to form there is a swelling, there is a thickening which interferes with the free action of the tendon. If the tendons do not act freely, then the wrist, the tone of the wrist and the tone of the fingers is lost and we get stiffness, which may take months and months to get rid of.

So much for fractures of the wrist. Now we will go on to the next group, the elbow.

Here you have a typical dislocation of the elbow, in a child perhaps of twelve years of age. As you know, that is a simple injury, and occurs frequently. It is very easy in the ordinary case, by placing the thumb over the bone and extending the elbow, simply to carry the upper end of the ulna forward over the radius back to where it belongs here. The reduction is ordinarily very easy.

In a child, such a case should be kept at rest for a week, perhaps a few days longer, then it should be theoretically turned over to the physiotherapist, and here she has less to do than she had in the region of the wrist, because the tendency to return, or for power to return in the elbow is much greater than that in the wrist, because the structures are not nearly so complicated nor are the motions nearly so complicated.

The physiotherapist who knows her business with this case, after the reduction of the dislocation of the elbow, will save her efforts and will do just as much and keep mother and father pleased, I mean she will bake the elbow and then she will tell little Johnny to begin to move the elbow, and little Johnny usually will heed her and the trouble will be to keep the brakes on and prevent him doing it too hard. Voluntary motion, never passive motion, as opposed to the gentle passive motion to start the fingers in motion in the wrist.

Passive motion in an elbow may do no harm, but it is a swell physiotherapist that can tell which cases it is not going to do any harm, and it is also a swell surgeon. More damage is done to children's elbows by the enthusiastic surgeon or the enthusiastic physiotherapist, who believe that motion is not returning rapidy enough, and endeavors to encourage motion by bending and extending the elbow forcibly, more damage is done that way than by the original injury every single time.

Why? Because when one has had a dislocated elbow, there has been hemorrhage in the joint, there have been consequential adhesions formed across the joint through the formulation of granulation of the tissues. If we allow the patient to stretch these adhesions gradually by their own effort, the patient will not hurt himself. If he is hurt in the course of those motions by passive effort at manipulation, then those adhesions are torn and there is further hemorrhage in the joint, with further formation of adhesions.

Therefore I say in no joint in a child, in the recovery period, should passive motion to the point of pain ever be used.

Another anecdote. Last year I had a child who had a fracture like this, a fracture of the internal epicondyle with considerable displacement, a very badly smashed up elbow. He was eight years old, and we got it back into a very good position, and he went away unfortunately to another doctor. No, he started with another doctor, that was the way it was, who got it in very good position, and kept it quiet for perhaps three weeks, and then began to manipulate it, and when I got the child, every day for four weeks that surgeon had forceably flexed and extended that elbow, to the greatest possible point. He had gotten the child in such a nervous state, that although he was a good kid, and sensible, the minute he came into the office

he started to scream, the most painful procedure you could imagine, and he had succeeded in reducing the motion until the child's elbow joint was limited in motion to about ten degrees from a right angle.

We took hold of him and started the physiotherapy treatment. I am telling you about what we do when things have gone wrong with a displacement. We started first with heat, then we used heat only for a week. We did not touch the elbow at all. We let the child get over the fear of being hurt. At the end of a week, we began massage. Why massage? To endeavor to hasten the re-absorption of the adhesions which had formed within the joint.

Massage hurries the blood stream if properly applied. If applied too heavily, the damages are to the muscles and ligaments and tissue, and cause more hemorrhage and more effusion of fluid. Anyway, with this child we went on with the heat, and then we began the massage and gradually we gained his courage back again, and then we started him doing things with his arm, that is trying to move that elbow. The gain at first was very slow, and he went to his home town out there, and he went in the barber shop and met the doctor who had operated on him previously, and the Doctor said, "How is your elbow getting along?" The boy said, "Pretty well, sir." "Let me see it." He took hold of it and started to pump handle it again, and the boy let out a yell and the barber told the doctor to lay off. The doctor said to the boy, "You go home and tell your mother that elbow will never move again if you don't do something about it." The result was at the end of two months that boy had normal motion in his elbow, because he had been allowed to do it for himself.

I brought that up merely as an example of what can be done by the active, by the guidance by the physiotherapist of the active efforts of the individual. This is not so true in the grownup, unfortunately. Joints in children and joints in grownups are two very different propositions.

In grownups, such an elbow has ordinarily to be helped to gain active motion by moderate guidance of passive motion. Now I am going to put in a word there; passive motion, I want to warn you all, is best used as passive motion. You see the two meanings of the word? You see passive motion ordinarily means going at a joint as one would a pump handle. What I mean by passive motion is allowing the weight of your hand and arm to lie against the flexor extensor surface of the forearm, and gently push, meanwhile instructing the patient if you are pushing on the extensor surface to pull with their own flexors. That does not hurt, that does not cause breakage of the adhesions, and does not cause hemorrhage.

Here is a case of a child where there has been a lateral dislocation of both the condiles of the humerus, and as you see shot off sideways, carrying with them the radius, the ulna and the radius, so that the joint has not been damaged to any great extent, but nature has gone here and filled in here with a callus and the probability is that that child when we got through had a perfectly good elbow as his country residence instead of at home, that is it belonged here, but works out there, and probably works perfectly well, showing the adaptability of the child to deformity and injury. That joint, if I had seen it, in spite of the looks of the thing, if the motion was normal, as I suppose it would have been, I should have let it alone unless the family objected too much to the appearance. If they did, I would have pried the whole thing back on the lower end of the humerus. In such a case it is probable physiotherapy would be of relatively little importance because the joint has never been invaded, and will take care of itself as soon as the healing of the fracture occurs.

The shoulder: in a child, almost any old shoulder will work. In the adult, there are darn few injured shoulders that will work, it is just the reverse. This injury looks to be far away from the shoulder joint, so that the shoulder joint will not be invaded. Probably it wasn't, probably it was far enough away so the shoulder joint was not affected, but the chances are nine to one that that shoulder after the fracture had healed, required from six months to a year to regain even a moderate degree of motion.

Why? Because in the adult, the average method of putting up fractures is to leave the hand at the side, held down to the side by means of splints and bandages, without movement until the fracture has healed. During that time, as always happens in fractures, the muscles atrophy. The weight of the arm pulling down here on the ligament of the joint, pulling here on the deltoid muscle, stretches that capsule, and the capsule of a joint once stretched becomes elastic, stiff, and as a result of that, at the end of four or five weeks or five or six weeks it takes for the fracture to heal, the arm is taken out of the slings and out of the bandages, and it will be found that abduction at that point is practically impossible. The scapula is the only way that abduction occurs, rotation is gone, and motion must be restored. This could all have been avoided, we assume this fracture had that effect, had that fracture been put up originally in the horizontal position on a splint, on a platform splint, supported from the hip, with the arm going out like this or like that. Then if you did not want to go, or to give physiotherapy during the course of the healing, you are safe, because when you take off your splint gravity is of its own efforts going to restore your motion. You see the difference.

If the arm gets stiff down here, the only way you can get gravity to help you is to stand on your head, but if you put your arm out here, then as you stand or sit erect, you can hold your arm up there gradually and it will come down of itself, and that arm motion at least, will be maintained.

All fractures then, with a few exceptions—Doctor Watkins of San Francisco is here and I do not dare say too much because he will get up and jump on me—but fractures ordinarily in the region of a shoulder joint should be put up in the abductive position. They should have, as the wrist has, active physiotherapy from very early stages.

I would like to see any shoulder put up in an abduction splint, and before the hemorrhage is gone, before the swelling is gone, the second day I would like to see the physiotherapist go at it first with heat and then with mild massage, which can be increased as the hemorrhage disappears, and can increase in force and depth.

I like to see passive motion begun as soon as union here will allow it. I like to see active motion begun as soon as union here will allow it, because the strain put upon this healing fracture at this point, by active motion, that is by the forcible use of the muscles, is greater than that put on it by passive, or gentle, as I have said, passive motion.

I have an old doctor in Detroit here, who is 86 years old and still practicing medicine, who got a fracture at this point here a year ago. He came to me and insisted that I put it up in the old fashioned way. He said he had put up more fractures in his life-time

than I had, and he knew more than I did. We had to come to a knockdown fight. I told him if he wanted to treat it that way he would get somebody else to do it. I wanted it at the side. We got it up in an abduction splint and he swore and raised the dickens and said he couldn't live in it, and he got used to it and we kept it up for five weeks, and when he was taken out of that, although he was 84 years old, he required only six weeks of physiotherapy to restore normal motion. Every time he sees me on the street, he comes to a halt and instead of saluting with his hat brim, salutes with sticking his arm straight up in the air. That shows what physiotherapy at the earliest possible moment will do for these very uncomfortable shoulder fractures.

We now go down to the lower leg. The lower leg will stand more deformity than the lower arm, because the motions of the foot are less specialized than are the motions of the hand. It makes relatively little difference how irregular the fracture at this point is, if the weight line there lies correctly; I mean by that if the weight line passes in a straight line between the hip joint, the middle of the knee joint, and the astragalus, that is if that line is straight then we need not worry about the moderate deformity such as that at that point. We also do not have to worry about cross union as we do with the radius and ulna, but nevertheless we still desire to get as accurate as possible restoration of the tissues, but in the lower extremities as a rule anatomical restoration is not so necessary as it is in the upper extremities.

Also physiotherapy is not so necessary as it is in the upper extremities; I mean to such an extent. It is always necessary and always useful. I am not trying to cut you out of these leg cases, but it is not so absolutely necessary because when coming in it is utterly necessary to the leg with active motion, otherwise they will fall down. In the arm, however, they do not have to do anything at all with the arm unless they want to. In the leg the minute they begin to walk why they have to use every muscle and they have to use the joints and therefore they will work themselves out faster than they do with the arm.

Nevertheless in all of these fractures, the ideal condition is to take care of the fracture from the first minute after reduction, and also after such part of the posterior part can be removed, and the anterior part be exposed to heat and daily massage to the tissues.

As the fracture gets thick enough so it will bear the weight of the leg, the fracture should be taken out of the splint, and the parts exercised. In that way you can get through quicker, and they will have normal motion restored almost immediately, but in the adult the knee and the muscles must be watched continuously in these fractures.

Here is a bad one. That might work as far as the patient is concerned, but some ambulance chaser or attorney is going to get him in the end and take an X-ray and the poor old doctor will have to go to court. It is quite possible that will work, and it is quite possible the weight line is sufficiently straight so when the union occurs, there would have been a good leg, but we said we should prefer to correct it.

The way we correct it is to get one of the bones, either one, caught end over end, by the use of the fluorescope under general anaesthesia or local anaesthesia if you choose, and get one of those and use that, so that it has a lever to pry the other into place. These are very difficult to hold, and have to be held in position for a long time, but at this particular position which is the lower third of the tibia and fibula, the physiotherapist becomes again absolutely indispensable, because at that area in the bones, the circulation after a fracture is extremely poor. The blood supply is very bad, and we have to do everything in our power to increase that blood supply in order that union will occur.

This is the most common place in the body for the occurrence of the delayed union. We never speak of non-union, we speak of delayed union. Non-union does not exist. We speak of delayed union because it may be four or five years after the fracture exists. In that position, I say physiotherapy in any of its forms, even diathermy, is good if we feel that whatever we are doing is going to add to the blood supply.

Another one. This is an ankle joint here. This line at the side, there is the astragalus, here is the triangular piece broken off from the tibia, and into the joint.

Now then if the X-ray showed this line here did not cause a dislacement downwards or upwards of this fragment, in other words that the line of the joint was straight and continuous, except for the crack, no further attempt at reduction is necessary, but if it shows, as I cannot tell here, if it shows this is displaced downwards, so there was a step in the joint surface or a space upwards as sort of a step, then every effort should be made to further restore that, and I think the next picture shows that that was done. Yes, you see here, this space has been closed up by a manipulation. You cannot see the ankle joint; that has been closed up by manipulation, so as to make this joint surface level.

Now why do we care about the joint surface being level? Because in a weight bearing joint, such as the knee or the ankle, any difference in the level of any part of either surface of that joint, means instability. It is very much as though one tried to walk with the outer quarter of the heel of the shoe removed, although that would not make any difference in the modern heel any way, there is not anything but one quarter there anyway, but in the ordinary sense of the flat heel, if you tried to walk with the outer quarter removed, one would constantly fall over, constantly wrenching the ankle, so there would be a strain. That is what happens in a joint where one part of the joint is higher than the other. There is instability with constant strain and wrenching of that joint.

In such a case as this, then, physiotherapy, active and passive motion, can be started within four or five days. Such a piece of bone will hold itself in position very promptly, and the sooner we are able to start active motion, especially, and passive motion secondarily, the quicker will be the return of function in that joint.

An angle, the angle with the fracture of the internal malleolus, very rare without a fracture of the fibula on the outside. It is hard to conceive how that happened, how that can be torn off without at the same time either rupturing the ligaments or else breaking the fibula at this point. Again the importance of the joint, if this fracture is allowed to sway outwardly so it breaks out in that direction, then the astragalus will never again have the proper internal support, and we shall have an increasing flat foot, and we must then, in such a fracture as this, be absolutely sure this fragment is jammed in tight so the astragalus fits into this corner firmly just as it does into that corner, and that has been done in this case.

These cases take a long time to unite. The tendency is to let them walk too soon. Six weeks is the average time. Personally I don't let them walk without

support for three months, because I have seen several of them, after six, eight or ten weeks when they started walking, a month or two later this will be forced out and they will come to your office with the foot in extreme position, walking on the outside of the foot, and in an almost totally impossible position for correction.

This is to show you one of the most bothersome fractures, that is the fracture of the spine of the tibia. Usually with it occurs a fracture of the crucial ligament, a tear in the crucial ligament, and often a tear in the internal portion there. There is a case for physiotherapy for you. In the first place the joint must be kept still and rested a sufficiently long time to allow the ligaments to unite. That is absolutely necessary. Early motion cannot be carried out, because then union of the ligaments will not occur. Therefore we have to keep the adult knee joint in this case still too long, and we find when we get through, adhesions are formed and there is the opportunity for the physiotherapist to use all her ingenuity to increase the motion, first active motion with heat and with massage, often deep and heavy massage, and if that does not work, progression to more and more strong passive motion. I believe this is about the only joint, the only place in the body, except occasionally in the shoulder, I ever believe in using forcible breaking up of adhesion under an anesthetic. It is often necessary to do that in this type of knee, or in the knee which follows too long fixation.

Another fracture of the knee, which shows the fracture of the external condile of the tibia, with this displacement down. If that is not restored, the patient will develop a knock knee later in life, which will have to be corrected, with also limitation of the motion.

A fracture of the femur, put in here to show you that perfectly useful results occur, athough the position of the bone is very bad. There is one of my own patients. He was unfortunately very alcoholic. He said he did not care a continental how his leg looked as long as it united, and he went on, and that is the way it did unite. Finally after a year or so the break filled in there and this came off and he had a good union, with some deformity, but not enough to interfere with his walking. This is another view of the same fracture.

The fracture of the hip in the elderly person. This is the intracapsular fracture of the hip. Here is the lesser trochanter, here is the greater trochanter. Here is the transverse fracture at this point, and the head there. We used to think they were pretty hopeless, but little by little we are getting new improved methods of reduction, and we are getting better and better results. It is necessary to keep these fractures off weight bearing, in my experience, for at least six months, because the bone is very poorly nourished and if you do not do that, although the conditions may be excellent, the head of the bone will gradually dissolve, and you will have ultimately a defect.

This is one of the most important joints for physiotherapy, because in people of this age the muscles get atrophied very rapidly, and it takes all your skill and your knowledge and muscle training to re-develop them, and make these elderly people realize that they have to use their own muscles.

This is a fracture just below the greater trochanter, put up very badly, in a very bad condition. If left that way, the child will never have a reasonably useful leg.

DISCUSSION

A Member: Doctor Kidner, in cases of fracture of the hip, in elderly people, do you put them up in casts or what other procedure is used, immediately following the fracture?

Doctor Kidner: The accepted treatment, I believe, although some of us do not agree with it, the accepted, the usual treatment is the so-called Pittman treatment, which consists in breaking up of the impaction, if there is any such impaction, in overcoming the external rotation that is also present. That is the toe always turns out, forcing the toe, forcing not the toe but the knee in internal rotation, and abducting just so far as possible at the hip. That usually is about forty-five degrees.

The leg is then put up in plaster, the plaster being carried to the toes on the affected side, and to the knee on the other side. It is carried up as high as the ribs, and then the abdomen is cut out so digestion and breathing can be carried on. It is remarkable how elderly people stand this treatment.

There are many other forms of treatment which are under trial and which are very very useful in certain cases, but this treatment I believe is the routine, and I believe provides a larger percentage of useful results than any other one method.

We think now that the Smith Peterson nail may prove to be a very valuable thing, that is a nail with the shape of three edges coming in like that, three sharp edges, which is driven in, an incision made so the fragments of the hip can be seen, and the nail is driven after reduction has been made. The nail is driven through the trochanter, and into the head, and it is of such a peculiar construction that it does not cause pressure nechrosis. It is probable that may be the coming method, but that is in the future.

A Member: What about the danger of pneumonia in those cases?

Doctor Kidner: We are all scared to death of it every time we see a patient, and strangely enough it does not materialize very often. I had a dear old lady of 82, perspire for four months last year, and then she got pneumonia. I could not blame it to the fracture, she got pneumonia incidentally. If they are put in the plaster properly, so their lungs have room to expand, and so that they can be moved about and rolled over, laid up on their sides, with their legs sticking up in the air, then they do not ordinarily get pneumonia, in fact they get it much less often than they do if they are put in some sort of apparatus like an extension or sand bags where they have to lie still.

Anything else? Thank you very much for your attention.

The Use of Hydrotherapy at St. Elizabeth's Hospital, Washington, D. C.

By William Matthew Kenna, M. D., Senior Medical Officer

Prepared, by invitation, for American Physiotherapy Association and read before its Ninth Annual Convention, Detroit, June, 1930

The use of hydrotherapy at St. Elizabeth's Hospital is generally conceded to be of outstanding and decided value in the treatment of the psychotic patients under its care, as evidenced by the results obtained over a period of two decades or more. Its daily employment in this hospital has demonstrated beyond any doubt that it is definitely pronounced in its beneficial action; that it is a therapeutic agent of unquestioned worth; and that it is an asset to be confidently depended upon in applying therapeutics to those suffering from mental disorders and in the relief of many annoying and troublesome symptoms. The first elaborate recognition of hydrotherapy in the above-named hospital took place in 1898 when appropriate apparatus for this type of therapy was installed in Oaks Building, although in the previous year a start had been made. Since then additional units have gradually been added from time to time; and now there are, throughout the institution, a number of different hydrotherapy treatment rooms. On the male and female services there are fully equipped units in the Reception Building (for new admissions); in the Richardson and Howard Hall groups; and minor installations on the other services, as well.

Throughout the hospital most reliance is placed upon the wet pack—the choice of the cold, neutral, or hot pack being dependent upon conditions and upon the judgment of the medical officer prescribing the treatment. The age of the patient, the physical condition and the symptoms presenting themselves, all are considered and weighed in the determination of the choice of pack selected for each individual patient. The continuous bath is also in general use where it is indicated for the treatment of unusually excited cases who do not react favorably to wet packs or other modes of therapy, requiring longer continued application of hydrotherapy.

One undesirable feature of the prolonged continuous bath is the necessity for individual and assiduous attention on the part of the nurse or attendant for a long period, and the need of extreme watchfulness as to the maintenance of a stationary temperature of the water, as well as the prevention of scalding or of a possible drowning accident if the patient be suicidal.

The usual duration of the wet pack, as given at St. Elizabeth's is from 45 to 60 minutes; and the length of time of the continuous bath depends of course upon conditions, perhaps prolonged for hours. All therapeutic baths, and moreover, all hydrotherapeutic measures are performed only upon the written and signed order of the physician in charge, being prescribed and signed for, as any medical prescription would be. The kind of pack, for example, is specified as well as the frequency and duration in each individual case. These orders are written in books especially designated for that purpose.

Those patients who are able to absorb anything of an advisory nature are at once assured that the pack is in no way intended to be an element of restraint; that it is purely a therapeutic measure; and that they will be able to release themselves from their coverings while in the pack if they so desire at any time, and that they can do this without assistance. This reassurance has been found to be quite helpful in many instances where patients of a timid make-up or of an apprehensive reaction would otherwise be fearful that the pack might be designed as a form of restraint or punishment. In fact, some patients are convinced that packs are given definitely as a disciplinary action.

It has been found that younger patients accept, and react to, the cold packs much more satisfactorily in a physical way than those of a matured age who seemingly prefer (and who respond better to) the neutral or hot pack, because of their difference in vitality—the former group being able to make a physiological rebound with greater ease.

Instruction in the art of applying hydrotherapy is given to the nurses and attendants as a part of their required courses of training. Individual practice in the correct manner of procedure is taught by the superintendent of nurses and her assistants; and a series of lectures pointing out the theoretical views and the physiological reactions are given by a medical officer during the year. The dangerous possibilities are emphasized and careful attention is directed to the necessity and importance of scrupulous and painstaking supervision being given when hydrotherapy is administered.

Altogether, it may be said that experience has established the fact that hydrotherapy has enthroned itself as a positive and highly beneficial therapeutic agent in the treatment of psychotic patients in St. Elizabeth's Hospital. One distinct advantage appears to be the loss of the necessity for seclusion and restraint which in former times were so much in evidence.

The apparatus in the reception services consists of showers, sitz baths, hot-air cabinets, 10-12 pack tables, including of course, exercise rooms; the outfits in the other units being practically of the same type. A number of the wards have continuous baths. The number of treatments average from 1500 to 3000 a month. Each hydrotherapeutic treatment room has a bath-master or bath-mistress who supervises and applies the various treatments. Substantially, all of the newly admitted patients, except those whose physical condition contra-indicates, receive some form of hydrotherapy, even if it consists merely of the routine exercise and shower. Wet packs are also frequently given on wards of services not convenient to the hydrotherapy treatment rooms. The new Medical and Surgical Department (Department of Internal Medicine) Building, now in process of construction, will have a continuous bath installed on each ward.

After Care of Poliomyelitis

By Alice Lou Plastridge

Read before the ninth annual convention of the A. P. A., Detroit, June, 1930

The topic "After Care of Poliomyelitis" is too broad a subject to cover in a short discussion. And because I do not feel that it is necessary to explain in detail the theory of muscle re-education to trained Physical Therapists, I shall limit my discussion:

1. To a brief outline of the underlying principles in the treatment of Infantile Paralysis.
2. To giving the detail of a muscle examination which is essential before adequate exercises can be worked out.
3. To a demonstration of gaits and limps which are the after effects of Infantile Paralysis.

Outline of Treatment

I. Acute Stage (isolation period)
- A. Importance of correct positions to prevent contractures and deformities, such as:
  1. Scoliosis
  2. Hip or knee flexion contractures.
  3. Toe drop, equinus, valgus, varus, calcaneous.
  4. Abduction or adduction contractures of hips.
  5. Subluxation of shoulder joint.
  6. Elbow flexion contracture.
  7. Pronation or supination contracture of forearm.
  8. Dropped wrist.
  9. Claw hand.
- B. Correct positions maintained by:
  1. Wooden or pasteboard splints.
  2. Bandages
  3. Plaster casts or plaster shells.
  4. Covered bricks.
  5. Cradles to keep off weight of bedclothes.
  6. Pillows or sandbags or rolled blankets.
  7. Lifting sheet to assist in moving patient.

II. Convalescent Period. (From the end of Acute Period, as long as spontaneous improvement is marked—two years or more).
- A. Importance of continuing preventive measures.
- B. Importance of rest.
  1. To prevent fatigue of affected muscles.
  2. To encourage spontaneous recovery.
  3. To prevent stretching of weaker muscles by opposing stronger group.
     a. Contracted muscles can usually be stretched with safety but the tone and elasticity of a stretched muscle can rarely be restored.
- C. Importance of hot Salt Baths. (No curative properties.)
  1. Helps to remove soreness and tenderness.
  2. Heat increases circulation.
  3. Buoyancy of water takes away half weight of limb and force of gravity and allows any possible power to show itself.
  4. Exercises given under warm water.
- D. Importance of Massage.
  1. Must not be given until all soreness or tenderness has disappeared.
  2. Very light massage given once daily.
     a. Too hard or too much massage tires muscles and may even destroy what power is left.
  3. Massage improves circulation and tone of muscle but does not bring back power except indirectly.
- E. Importance of Electricity.
  1. Electricity has been proven to be of less value than other forms of treatment.
- F. Importance of Muscle Training (Neuro-muscular-education).
  1. Examination of muscles.
     a. Requires very accurate knowledge of muscles and their actions.
     b. Careful classification of all muscles from those which are normal to those which are totally paralyzed.
        1. Normal, Good, Fair, Poor, Trace, Gone.
  2. Principles underlying training of muscles.
     a. To prevent if possible the atrophy of muscles through disuse.
     b. To aid in restoration of function of muscles by a series of systematic exercises, graded according to strength of muscle given from 5 to 10 times—once daily.
        1. Their aim being to train uninjured nerves to carry on work of injured ones as far as possible.

III. Chronic Period (After spontaneous recovery has ceased and improvement is more or less at a standstill).
- A. Continuation of exercises and prevention of deformity.
- B. Operations.
  1. Tendon Transplantations.
     a. To improve function.
     b. To re-establish muscle balance.
  2. Correction of deformity.
     a. Arthrodeses and stabilizations.
- C. Braces or Plaster Casts (Probably necessary during Convalescent Period also).
  1. They never bring back power to muscles but do prevent deformity and enable patient to regain certain amount of usefulness and independence, which might otherwise be impossible.

Detail of Muscle Examination

Wherever possible tests should first be made in an upward direction, against the force of gravity. If the muscle group is too weak to function against gravity the patient should be placed so that gravity is eliminated and the motion is made in a horizontal plane. If no movement is visible this way, the test should be made in a downward direction, against resistance slight enough to prevent the limb from falling, but allowing gravity to assist the motion.

However, for purposes of comparison, the markings on the charts should be based on the amount of work done *against* gravity.

Various methods of keeping charts have been devised. The first one to be used extensively was as follows:

Normal—Muscle can complete arc of motion against gravity with a great deal of resistance.

Good—Muscle can complete arc of motion against gravity with some resistance.

Fair—Muscle can complete arc of motion against gravity (no resistance.)

Poor—Muscle cannot complete arc of motion against gravity.

Trace—Muscle can be felt to contract but no motion seen.

Gone or "o"—Muscle cannot be seen or felt to contract.

Sometimes plus and minus signs are used to denote more accurately the degrees of motion. Some people use the numerals from 1 to 5 or 1 to 10, others show by graphs or parts of circles the actual arc of joint motion.

All tests are made against as much resistance as the muscle can overcome.

I. Examination of Lower Extremity.

(I shall group the tests according to positions rather than muscles, in order to avoid moving the patient more than is necessary).

A. Patient sitting on edge of table.

(If examination is made during or immediately following acute period or if back or abdominal muscles are seriously involved these tests should be made in lying position).

1. Toe Flexors.
   a. Keep foot at right angle and curl toes down. Examine phalanges separately to determine strength of long and short flexors as well flexors of proximal phalanges.
2. Toe extensors.
   a. Foot at right angle, raise toes. The long extensors of the big toe (Extensor hallucis proprius) and of the four small toes (Extensor digitorum longus) can be felt and seen on front of the ankle, while the short extensor (Extensor digitorum brevis) can be felt in front of the outer malleolus.
3. Tibialis anticus (dorsal flexor).
   a. Toes relaxed, foot slightly supinated, raise foot. (Feel for tendon action on inner side of dorsal aspect of foot.)
4. Tibialis posticus (Invertion).
   a. Toes relaxed, turn foot inward without supination. (Feel for tendon above or below inner malleolus.)
5. Peroneus longus and brevis (Eversion).
   a. Toes relaxed, turn foot outward. (Feel for tendon over or below outer malleolus.)
6. Gastrocnemius (Plantar flexor.)
   a. Toes relaxed, push foot downward by pulling heel backward. Action can be felt at back of heel or in muscle fibers above.
7. Quadriceps (Knee extensor.)
   a. Raise lower leg to straighten knee. Tendon action can be felt below patella, or muscle action on top of thigh.
8. Ilio psoas (Hip flexor.)
   a. Keeping knee bent, raise thigh from table as high as possible without allowing body to lean backward. Tendon sometimes felt through abdominal wall or deep in groin.
9. Sartorius (Hip flexor.)
   a. Bend knee against resistance applied at the ankle while raising thigh slightly from table. (Feel for tendon just below anterior superior spine of ilium.)
10. Tensor fasciae latae (Hip flexor and abductor.)
    a. Keeping knee extended, raise leg from table. Tendon action felt in ilio-tibial band at outer side of knee and on anterior crest of ilium.
11. Inward rotators of hip.
    a. Keeping knee bent and knees together, push lower leg outward. (Push feet apart.)
12. Outward rotators of hip.
    a. Same starting position as for inward rotation, push lower leg inward, crossing it behind other leg.

B. Patient lying on back.

1. Anterior abdominals.
   a. Arms folded, come to sitting position, keeping back rounded forward to prevent action of erector spinae. Muscle action felt in both upper and lower halves of center portion of abdominal wall.
2. Lateral abdominals.
   a. Raise head and shoulders. Action felt on each side of anterior groups.

C. Patient lying on side.

1. Abductors of hip (gluteus medius and minimus.)
   a. Keeping body rolled well forward and thigh back of mid-line of body, raise leg straight up. Muscle action felt around trochanter.
2. Abductors of hip (opposite leg.)
   a. Examiner holds upper leg high in air. Raise under leg to it, keeping knees straight. Muscle action felt along inner section of thigh.
3. Lateral trunk (Including abdominals and back.)
   a. Upper arm at side, under arm around front of neck, feet held down; raise trunk from table.

D. Patient lying face down.

1. Gluteus maximus (Hip extensor.)
   a. Raise entire leg from table. Muscle action in buttock.
2. Hamstrings, inner and outer. (Knee flexors.)
   a. Bend knee. (Feel tendons just above knee.)
3. Erector spinae (Back Extensors.)
   a. Hands behind back or behind neck, feet held down; raise head and shoulders from table.

II. Examination of Upper Extremity.

A. Patient sitting.

1. Finger flexors.
   a. Bend fingers. Examine tips of fingers for flexor profundus digitorum, second phalanges for flexor sublimus digitorum and proximal phalanges with tips held straight, for flexor lumbricales.
2. Finger Extensors.
   a. Straighten fingers and raise backward.
3. Dorsal interossei.
   a. Spread fingers apart.
4. Palmar interossei.
   a. Pull fingers together.
5. Thumb flexors.
   a. Bend thumb. Test tip and second joint separately.
6. Thumb extensors.
   a. Straighten thumb backward. Test joints separately.
7. Abductor of thumb.
   a. Palm up, thumb in line with forefinger, raise thumb straight up.
8. Abductor of thumb.
   a. Palm up, thumb raised and in line with forefinger, pull thumb down to forefinger.
9. Opponens pollicis.
   a. Palm up, draw thumb across palm of hand to base of fifth finger. Keep thumb straight and draw base of thumb toward opposite side of hand.
10. Wrist flexors.
    a. Palm up, raise hand, keeping fingers relaxed. Feel for three tendons in wrist.
11. Wrist extensors.
    a. Palm down, raise hand, keeping fingers relaxed.
12. Pronators.
    a. Elbow bent at right angle and arm held close to side, turn palm downward. Give resistance just above the wrist, not on hand.

13. Supinators.
    a. Elbow bent at right angle and arm held close at side, turn palm upward. Give resistance just above wrist, not on hand.
14. Elbow flexors.
    a. To test brachialis and biceps, bend elbow keeping palm facing shoulder. To test brachioradialis bend elbow keeping thumb facing shoulder.
15. Elbow extensors.
    a. Elbow bent, hold upper arm straight up in air and close to ear. Straighten elbow, pushing forearm straight up.
16. Anterior deltoid.
    a. Raise arm straight forward to shoulder level. Resist above elbow.
17. Middle deltoid.
    a. Raise arm straight sideward to shoulder level without allowing upper arm to roll upward. This prevents action of biceps.
18. Upper trapezius and levator scapulae.
    a. Shrug shoulders.
19. Serratus anterior.
    a. Arm raised forward at shoulder level, push arm straight forward against heavy resistance. Prevent action of pectoralis major. Muscle strength determined by action of scapula. If vertebral border of scapula stays flat against ribs, muscle is strong; if it "wings" and pushes away from ribs, it is weak.

B. Patient lying on back.
1. Pectoral is major.
    a. Arm lying on table at shoulder level, raise arm straight up in the air. Muscle action strong on sternal fibers. If arm is placed diagonally upward on table and raised, the clavicular fibers work more.

C. Patient lying face down.
1. Posterior deltoid.
    a. Arm extended sideways, raise arm from table. The tendon stands out strongly across the back of the shoulder joint. If the trapezius should be weak and the deltoid strong, the arm would be raised, but the scapula would not approach the spine and the tip of the shoulder would be buried in the table. If the deltoid should be weak and the trapezius strong the arm will not be raised, but the scapula will move toward the spine.
    b. Another position for testing the posterior deltoid is with the arm at the side. Raise the arm straight backward while feeling for the action just above the axilla.
2. Middle Trapezius.
    a. Arm extended sideways, raise arm from table. The fibers of the middle trapezius are seen to draw the vertebral border of the scapula toward the spine.
3. Lower Trapezius.
    a. Arm stretched above the head, raise arm from table. Lower fibers are seen to tighten drawing the vertebral border of the scapula diagonally downward and swinging the apex slightly outward.
4. Rhomboids.
    a. Arm at side, draw the arm diagonally across the back. (Feel the contraction of the rhomboids at the upper vertebral border of the seapula.)
5. Latissimus dorsi.
    a. Arm at side, raise arm backward and roll it slightly inward, keeping it close to the body. Feel the tendon at the posterior border of the axilla.)
6. Outward rotators of shoulder.
    a. Arm at shoulder level with forearm hanging at a right angle over edge of table. Raise forearm and hand upward toward head.
7. Inward rotators of shoulder.
    a. Arm at shoulder level with forearm hanging at a right angle over edge of table. Raise forearm and hand upward toward feet.

Gaits—Supposing all muscles to be strong except the one mentioned.

1. *Abdominals.*
   The back is arched markedly while the abdomen is very prominent; the head is carried backward and the gait is a waddling one.
2. *Lateral Abdominals.*
   As the weight is placed on the foot of the unaffected side, the weak abdominals permit the hip on the weak side to sag. This is called the Trendelenberg sign. This is frequently accompanied and augmented by slight adduction contracture and a weakness of abductors on the opposite side.
3. *Weak back muscles.*
   The back is rounded, the abdomen tightened, and the head thrust forward. The gait is somewhat awkward.
4. *Gluteus maximus.*
   As the weight is placed on the affected leg, and the other foot is raised from the floor the body swings diagonally backward toward the side of the weakness.
5. *Gluteus medius and minimus.*
   As the weight is placed on the affected leg, the body sways sideways toward the side of the weakness and the arm on that side is thrown sideways to help maintain the balance.
6. *Abductors.*
   The so-called "snow-shoe-limp"—The feet stay somewhat further apart than is normal and in walking each foot tracks in front of itself, instead of in front of the opposite one, as is normal. There is an inability to walk a chalk line, but no asymmetrical limp.
7. *Hip Flexors.*
   When the leg cannot be lifted sufficiently to place it forward for a step, the whole side of the body is flung forward and the leg dragged after it. This appears to rotate the opposite leg inward.
8. *Inward Rotators.*
   The leg rolls outward from the hip.
9. *Outward rotators.*
   The leg rolls inward from the hip and the gait is pigeon-toed.
10. *Quadriceps.*
    a. Hand is placed on knee or thigh to hold knee stiff enough to place weight on that leg.
    b. Leg is rotated outward to stiffen the knee enough to bear weight upon it. The forward thrust of the body will not bend the knee through its lateral axis.
    c. The body is bent forward from the hips and the knee thrust backward. The knee may even be hyperextended.
    d. With an equinus, the weight is borne on the toe and the body bent slightly forward from the hips while the knee is forced back.
    e. If both quadriceps are weak, the body is bent forward continuously.

11. *Hamstrings.*
    The knee is hyperextended with each step and the walking rhythm is not perfect.
12. *Dorsal Flexors.*
    The knee is raised higher than normal to prevent the dropped toe from scraping and when the foot strikes the ground there is a double sound, the toe touching first and then the heel.
13. *Posterior tibial.*
    With a weak posterior tibial the foot is held in valgus and the walk is "flat-footed."
14. *Peroneals.*
    The foot is held in varus and the step is taken on the outer border of the foot.
15. *Gastrocnemius.*
    With a weak gastrocnemius there is no power to push off with the front part of the foot and the heel is never lifted to make a "springy" step.

As the weight is placed on the foot the toe flexors contract and pull the heel toward the toes, exagerating the arch of the foot and giving it a shortened appearance.

This limp may sometimes be improved by trying to get the "push off" with the knee instead of the ball of the foot. There are other rather complicated gaits due to unusual combination of weaknesses which it is impossible to imitate when one's muscles are normal.

It is rather rare to find a gait where just one group of muscles is affected as I have tried to describe them, so that you find several rather confusing and seemingly conflicting actions which are exceedingly difficult to distinguish and diagnose correctly. However, this is one of the best guides we have to help us determine the particular type of work which will be most beneficial for that individual.

OFFICIAL PIN

The *Official Pin* is now ready. Get your purchase card from the treasurer and send to Filene's Sons Co., Boston, Mass. Price $3.00. The pin is small and made up in blue and gold and the same design as in the arm emblem—very pretty.

American Physiotherapy Association
Application for Membership

Name.....

Address.....

Present Occupation.....

Send Application to the Secretary
Charlotte H. Ballard, St. Francis Hospital,
Bush and Hyde Sts., San Francisco, Calif.

The Physical Therapy Situation

By James T. Watkins, M. D., F. A. C. S., San Francisco, Calif., Past President American Orthopedic Association

(Originally read before the Northern California Chapter of the A. P. A. and printed in their Bulletin for April, 1930. Re-read by special request before the Ninth Annual Convention of the A. P. A., Detroit, Mich., and printed here by recommendation of that body

A serious situation confronts us. All over the country thoughtful men are attempting to make scientific studies of the various modalities of physical therapy; and the results of their studies seems, to date, to be the reverse of our clinical findings. Massage alone seems to have held its own.

Now, when we say "scientific studies" we mean that, without prejudice or preconception of any kind, the effort is being made to determine just what a physical agent will or will not do.

But because a man approaches a problem in this spirit, it does not necessarily mean that his manner of approach or that his conclusions can not be wrong. The father of scientific study, Aristotle, made mistakes which, in their terminology at least, obtain to this very day. His teacher, Plato, who was a theorist pure and simple, on occasion came nearer to the truth than did Aristotle, the investigator Plato's "tripod of life; the brain, the heart, the liver" versus Aristotle's "heart."

A university of California doctor placed the electrodes of a diathermy machine at either end of a piece of meat, with a negative result. Only a spindle like core of the meat was cooked. Conclusion: It was a useless modality. Still, what he worked on was a dead and not a live tissue. I buried a thermometer, after wrapping its shaft in alcohol gauze, in the depths of a man's arm, and applied diathermy. In a few moments it registered 108 degrees F.; but it has been asserted that accidentally I had obtained about the thermometer a spark gap which accounted for the heat. One of these, and perhaps both, are imperfect experiments, and our results negative one another.

Now another menace presents itself. All over the country there are commercially-minded doctors who see in physical therapy a means of giving "absent treatment"—and for them it is primarily a gold-reducing formula. They, through their physical therapists, or alone, are giving inadequate or wholly inappropriate treatment. They are not using the right kind of treatment, or are not using enough of it. And their results are nil.

The result of all this is that the employer—notably the insurance companies—who pay these alchemists' bills, are becoming more than restive. They are seeking an excuse to ban physical therapy; and when they wake up to the apparent significance of these would-be scientific investigators they may find in them the excuse they need.

When that day comes, many of you will find yourselves out of a job.

What is to be done about it?

The first thing to do is to make an effort to see to it that everyone who undertakes physical treatments shall be properly equipped to administer them. The second thing is to make a still greater effort to see to it that the physical therapist has the necessary time at her disposal adequately to treat each patient presented to her.

With these thoughts in mind, the national secretary asked each physical therapy society in America to send its delegates to the Portland meeting in 1929 properly instructed how to vote on these two questions.

Their conclusions you know. On page 220, vol. IX, No. V. of the Physical Therapy Review they are printed in full. There we learn that the physical therapists of America are agreed that, first, a trained physical therapist can adequately handle an average of fifteen ambulant patients a day—not 40 as occurs in at least one office in this city—if supplied with one water cooled and one air cooled quartz light, with one diathermy and high-frequency machine, one galvanic and sinusoidal machine, one baker, one leg and one arm whirlpool bath, and a moderate amount of gymnastic apparatus. But THIS IS THE MINIMUM. With less than that she cannot properly work.

The next thing is to bring these facts to the attention of employers of the industrial surgeon. I hope in the near future to address the San Francisco Insurance Claims Attorneys' Association on the same subject. I expect to point out to them that this is the most authoritative pronouncement obtainable in America today; that armed with it, they not only can but should inform themselves both as to the equipment and as to the character and amount of work done in the offices of the industrial surgeons they, as representatives of their several companies, employ. That, with this information before them, to do less than this might properly be constructed as conniving—at least passively—at spoilation of their companies.

It is to be expected that certain of the commercially-minded in our profession will proclaim it beneath their professional dignity to permit inspection of their plants and of their industrial records. In reply I would remind you that Dr. Samuel Johnson, the great lexicographer, defined "patriotism" as "the last refuge of the scoundrel," to which I would add that "professional dignity" might, with equal force, be defined as the last refuge of a grafter.

So much for the problem of the girl who is overworked with inadequate apparatus.

But how is the problem to be met of the scientific gentlemen the result of whose sincere though perhaps mistaken experiments are at variance with our clinical experience? He is our greater menace. History has shown that in time the grafter will betray himself, but that the effects of the honest mistakes of the honest man (vide Aristotle) may persist through the centuries.

So far as I can see, there is just one way in which we can protect ourselves—namely, through the accumulation of evidence. If I were your autocrat I should immediately appoint a committee to consider ways and means for making simply uniform record systems, systems which would be simply and easily filled out and as easily indexed; and those systems I

would have you individually and collectively keep up with the same perpetual and desperate courage that you might be expected to employ to protect your honor. And in the last analysis it IS your honor that you are protecting. Once a month I would have you report progress to a central committee, whose collective report would again be filed. By this means the collective experience of the entire Metropolitan area would at once and at any time be made available, and, as a yearly or semi-annual report in your journal, it ought to prove invaluable.

As a crude illustration of what might be done: Let us take the case of diathermy. Certain scientifically-intended experimenters find it impotent. On the other hand, my associate, Dr. Ymundson, out of his single practice would have this to offer: A young woman presented symptoms of pyloric ulcer. The X-Ray demonstrated the absence of adhesions about the gall bladder. Operation was suggested. But, why I don't know, before this was done, treatments by diathermy were instituted. She was at once benefited, and when thirty had been given found to be completely recovered, eating everything and gaining in weight. That was three years ago, she is still well.

Such a report, taken by itself, is well-nigh worthless—but if it could be substantiated out of the experience of a dozen or more other men, what so-called scientific demonstration of a modality's unworth could stand against it?

Who does ONLY what he is paid to do, is paid ONLY for what he does. That applies to you just as truly as it applies to me. To keep such records as I have indicated, even when reduced to their simplest forms, would entail some added work; work for which those of you who work for the "gold-reducing" squad would not receive monetary remuneration. And yet there is a remuneration greater and more lasting than any material reward if it is the self respecting knowledge that you are not a mechanical drudge but an independent observer and fearless recorder of fact. It is the recognition that in the great scheme of things you have done your bit; that you have woven your individual thread of observation into the vast fabric of scientific knowledge; knowledge which, beginning in the dimmest recesses of the past, extends on downward through the limitless roaring abysses of time; knowledge which, in its application, makes the world ever a better place to live in, and may, in the end, bring man and his Maker into harmony, and perhaps face to face. That is your real reward.

Partial Index to Current Literature

Fragility and Deficient Healing of Bone in Poliomyelitis. I. HARRISON TUMPEER, M. D., and R. W. MCNEALY, M. D. Jour. A. M. A., July 5, page 19.

Rehabilitation of the Disabled. HARRY E. MOCK, M. D. Jour. A. M. A., page 31.

Erysipelas. WALTER H. UDE, M. D., and E. S. PLATOU, M. D. Jour. A. M. A., July 5, page 1.

Massage. 1. RALPH PEMBERTON, M. D., JOHN S. COULTER, M. D., and HARRY E. MOCK, M. D. Jour. A. M. A., June 21, page 1989.

Physical Therapy for the Painful Shoulder

By Norman Edwin Titus, M. D., New York, N. Y.

Read before the Ninth Annual Convention of the A. P. A., Detroit, June, 1930

It is safe to say that by far the largest number of conditions causing symptoms of pain in the shoulder are the result of trauma. Very few conditions of infection cause any symptoms in the shoulder region and if careful inquiry is made into the history of cases, it will be found that thermal trauma is generally the greatest cause of pain. Too frequently people forget an exposure to a draft or that possibly the condition of which they complain may have occurred from carrying heavy objects which cause an abnormal pull on the shoulder joint and surrounding muscles. Of course, many cases do present themselves where there is a direct mechanical injury as the exciting factor. Falling on the shoulder or sometimes even slightly hitting the shoulder against the door jamb is enough to later cause conditions that will give pain. In the literature on subdeltoid bursitis there are many references to the possibility of focal infection and almost every author states it is possible to get an infection of this bursa. However, a close study of the literature fails to show a single case reported where there were signs of actual infection of the bursa. Of course, focal infection can cause pain in the shoulder joint when there is an acute arthritis but generally such pain is not limited to the shoulder alone. The general condition of the patient makes such a diagnosis easy and consequently our attention is drawn to more than just the shoulder joint, which, with its surrounding tissues, I have chosen to discuss.

It was interesting to note, after an investigation of cases of painful shoulder that were admitted to one hospital in New York, that more than fifty percent of the cases which came in complaining of that single symptom were found to have inflammation of the subdeltoid bursa. It is worth bringing to your attention how common this condition is, and if looked for on examination, is easy to treat with physical therapy. Inflammation of the bursa is revealed by two cardinal signs. The first is marked increase in pain on internal rotation of the arm, and second, increasing pain as the arm is abducted from the chest until the pain becomes severe before reaching the horizontal. On further abduction, generally beyond the horizontal, there is no pain and the patient can move the arm as freely as he desires without pain. On dropping the arm against the chest again, however, if it is held at right angles to the body, the same severe pain goes on as the arm descends and diminishes as the elbow approaches the chest wall. This characteristic picture is caused by the bursa being compressed against the acromial end of the clavicle as the arm is abducted and when the arm approaches the horizontal, the bursa slips down underneath the end of the clavicle and there is no pressure on it during movement through the rest of the arc. If it is found that abduction of the arm in this manner causes pain, it is easy to lower the arm without pain by flexing the arm forward on the chest, bringing it down over the face and chest to the dependent position.

Inflammation of the bursa frequently comes from thermal trauma and is commonly caused when motoring. Without realizing it, the draft from an open window chills the shoulder and the next morning there is acute pain. It happens to people traveling on sleepers, who awaken to find a shoulder has become chilled during the night. I have also seen cases in traveling salesmen caused by carrying heavy sample cases. Of course, direct trauma on the shoulder will cause inflammation of the bursa, such as when huntsmen are thrown to the ground. It should be remembered that even in the acute stage there is never only an inflammation of the bursa. There is bound to be an attendant myositis because trauma enough to injure the bursa under the deltoid muscle is generally sufficient to cause inflammation of that and other muscles at the same time. However, a myositis is easily treated with physical therapy and should such therapy fail to improve the condition, when the muscle is sufficiently treated, one should always look for the symptoms of a bursitis.

Another traumatic condition, which is trauma indirectly transmitted, causing pain in the shoulder is a fracture of the greater tuberosity of the humerus. I have seen quite a few cases of this condition where the patient fell, landing on the outstretched hand. The shoulder being held rigidly by muscular action of the muscles of the scapula particularly, the shock is transmitted by the humerus causing a chipping off of the greater tuberosity. These cases are frequently undiagnosed even with x-ray examination. I can distinctly recall two cases that were x-rayed in an emergency and when they failed to respond to rational physical therapy, a second x-ray taken by a more expert roentgenologist showed a definite chipping off of the greater tuberosity.

Speaking of x-ray diagnosis of shoulder conditions, it is worth while mentioning that when there is suspected calcification in the region of the subdeltoid bursa, it will not be revealed by an ordinary anterior-posterior picture of the shoulder nor will a greater tuberosity fracture, for that matter. It is necessary to have the arm rotated outwardly as much as possible to get such a diagnosis under the bursa or a fracture of the greater tuberosity.

You will notice that I have not said a "calcified bursa." Dr. Walter Brickner of New York some years ago reported in the Medical Journal and Record a series of two hundred cases of subdeltoid bursitis with associated calcification that had been operated on, collected from his own records and the available literature. It was noted by all operators and I have seen it myself, that the deposit of calcium was not in the bursa itself nor in the wall of the bursa. The deposit of lime, which is sometimes flaky but generally like fine, wet sand, is under the floor of the bursa; between it and the tendon of the supraspinatus muscle above which the bursa lies. It also exists in a plaque more frequently than in a lump. One of my own cases, who decided surgery was a quicker means of cure than physical therapy, was operated on. I attended the operation and saw that there was a deposit about a centimeter in diameter and a millimeter in thickness which corresponded to the x-ray pictures taken before treatment and which after sixteen treatments showed a thin bit of deposit only a millimeter wide. It was safe to conclude that the reason for the lack of diminution in the calcium deposit after sixteen treatments was that the picture showed the deposit edgewise.

Sprains of the shoulder, of course, give a very different history and it is advisable to proceed gently and carefully with them because there is frequently associated with them a tear of a muscle. Too enthusiastic massage or static electricity will cause an aggravation of symptoms by irritating a torn muscle.

Dislocations of the shoulder joint, of course, cause pain and physical therapy may always be counted upon to help this pain. Much is said in the literature about paralysis of the circumflex nerve following dislocations of the shoulder and the usual method of detecting nerve paralysis is by finding a spot of anaesthesia over the deltoid muscle. It is then decided that the nerve has been so severely injured as to necessitate particular treatment. In a series of over fifty cases of dislocated shoulders seen at Beekman Street Hospital, New York, at the instance of one of the surgical staff, Dr. Magee, all such cases were sent to the Department of Physical Therapy, to have the circumflex nerve tested out. (This was done as a special favor, for I make it a rule never to do any diagnostic work in my departments since they are departments of therapy and not diagnosis.) Surprising to say, in this investigation of well over a year there was never found a true paralysis of the circumflex nerve. Dr. Magee has not yet reported these findings because, as he said, he thought negative findings were of no value. It is hoped, however, that he will make a full report of these cases because electrical diagnosis of nerve injury is a far better standard to go by than relying purely on the possible anaesthesia that may occur in a recently traumatized joint. Of course there is temporary paralysis of the deltoid muscle following dislocations and there undoubtedly is a certain amount of pull on the circumflex nerve which should cause a very transient loss of function but electrical tests fail to show a definite nerve injury.

Fractures of the humerus, especially of the surgical neck, cause pain in the shoulder region but diagnosis is easy with x-ray examination. Even though the fracture is something that cannot be treated with physical therapy, it is in these conditions far and above any other treatment besides the immediate surgical treatment. The surgical treatment of fractures of the surgical neck of the humerus is well known and it is to be regretted that far too frequently the surgeon in charge of the case attends to his particular job and then absolutely disregards the usefulness of physical therapy applied to the rest of the arm and hand. In a large series of cases of these fractures, all of which received massage and passive motion to the fingers, hand and wrist, and later the elbow and after callous formation, the shoulder joint, it was found that the entire period of disability was lessened more than fifty percent. The usual story in such conditions is that the period of active treatment is one-half or less the period of convalescence. In other words, if it takes three weeks before union is formed, it will take six or more weeks before the patient has good function of his arm and hand. I have seen many cases treated by the surgeon who disregarded the condition of the hand, wrist and forearm and those cases had a permanent ankylosis of the fingers and wrist, making the hand useless for the rest of life. I can recall one such case that was worked on in our department for over two years and who finally gave up because he thought any possible increase of function was hopeless. This man had been told to keep his arm and hand quiet and did so for a month. When the humerus finally healed, his hand, wrist and fingers were so ankylosed that he will never get any use out of them.

In contradistinction to this case, I can recall one treated in Beekman Street Hospital, who, as is the usual procedure, received massage and passive motion daily from the very day that injury occurred. To forestall argument, the fracture was of the right humerus and when his humerus was pronounced healed, within twenty-four hours after the removal from the Balkan frame, he had full function of the arm and hand and could sign his name in practically his perfect signature. The curse of the literature of fractures is the term "after treatment." Ideally there should be no "after treatment" and the less there is, the more perfect is the care of the patient. In both the Beekman Street Hospital and at the Medical Center of New York, I am pleased to say the cooperation between the Fracture Service and the Department of Physical Therapy is ideal and this team-work has brought both departments the most satisfactory and prompt results. If there is one thing I wish to express today which might be put under the head of propaganda, it is the necessity of impressing on fracture surgeons the extreme importance of utilizing the facilities of physical therapy in shortening the still necessary after treatment, not only of fractures of the humerus but fractures elsewhere in the body.

As stated above, marked change in temperature is perhaps the greatest cause of pain in the shoulder and probably the most common condition caused by this thermal trauma is myositis of the surrounding muscles. It is surprising what little thermal trauma will cause marked disability of the shoulder and arm and if it is remembered that the muscles are nearer the surface and can be severely injured by temperature injury, it will help all of us to relieve many of the primary and secondary pains that are caused.

There is nothing like physical therapy to relieve the pain of a trapezius myositis. Of course, the large majority of cases do recover spontaneously when the patient is able to institute an adequate reaction. We all know that physical therapy comes into play only when it is possible or it is incumbent upon us to attempt to change an inadequate into an adequate reaction. Consequently, in pains caused by persisting myositis, showing an inadequate reaction, the use of physical therapy may be counted upon to convert this reaction and enable the patient to recover. When, however, the thermal trauma is so widespread as to affect the muscles of the scapula, it is most frequent that the pain is not in the shoulder alone to any marked extent except when pressure upon the muscle is exerted. Such a myositis is by far the most common cause of what is spoken of as a brachial neuritis. Many authorities in neurology, such as Tilney, Casamajor, Riley and Penfield of Columbia University have made the definite statement that there is no such thing as an ordinary brachial neuritis except due to definite trauma of the brachial plexus. At the request of Professor Penfield I investigated a large series of cases over a period of five years and I can state that his observations were entirely borne out by my findings. In every case of so-called clinical brachial neuritis, there was marked evidence of a severe myositis, more particularly of the infraspinatus and also the teres major, teres minor and supraspinatus muscles. It is reasonable to believe that in the perfect way we are constructed the brachial plexus is amply protected from direct thermal traumata. Through the necessity of the nerves of the brachial plexus passing down so close to the head of the humerus, a myositis of the surrounding musculature very easily may cause, through the spasm of these muscles, pressure upon different nerves from the brachial plexus. Such specific irritation through muscular spasm is most beautifully shown, if I may digress for a moment, in the effect of such spasm upon the sciatic nerve, causing the so-called sciatica which is

nothing more than a myositis around the sciatic notch and not a true neuritis. Consequently, when cases of pain of the shoulder present themselves with radiating secondary pains down the arm, it is of the utmost importance to investigate the conditions of the muscles of the scapula. I am sure that in ninety-nine percent of the cases a true myositis will be found and, if treated as such, they will get much more speedy relief of the secondary pains than from all the foolishness proposed by some authors such as giving diathermy down the arm and galvanism of such procedures which do not affect the primary cause of the conditions. It is the custom in the hospitals with which I am connected, to entirely disregard the secondary neuritis symptoms in such cases. Absolutely no attention is paid to the painful areas or pains in the arm and hand. Strict attention to the myositis of the shoulder muscles relieves these cases much more promptly than any other method of therapy.

As to the question of modalities to use in physical therapy applied to the conditions I have mentioned, a few words concerning technique are proper. First of all it is always a proper procedure to use radiant light. Unless the condition is extremely deep, further in than one and a half inches, light is generally sufficient to relieve the pain as it creates, through the stopping of the light energy, definite heat which in turn causes a physiological vaso-dilatation and a consequent local hypermia. A prominent playwright once told me in his characteristic layman's phraseology the following: "Pain is the cry of a nerve for just a little more blood." This is indeed a true statement and if through physical measures we are able to increase the local blood supply, we are generally able to relieve the pain, if not entirely, to a very appreciable and appreciated degree. It is not always necessary to go to all the trouble and dramatics of applying diathermy when radiant light of sufficient intensity will accomplish the same result. With all the talk nowadays about diathermy, too many people forget that the simple application of light and perhaps later the application of conductive heat in the form of an electric pad or hot water bag, will keep the part warm enough to relieve the pain.

If, however, the pain is too deeply seated for radiant light to affect, then we should very properly use diathermy to relieve the tension within the tissues. Many people in applying diathermy, however, forget that a certain degree of common sense and knowledge of the current used is necessary to achieve results. Placing a plate back and front of the upper corner of the chest wall does not create heat in the shoulder joint. Plates almost touching across the top of the trapezius muscle will never cause heat in the tissues beneath. It is frequently forgotten that the centers of the plates used should be as near if not nearer than the edges. In the technique of heating the shoulder joint with diathermy, it is a good procedure to put a plate in the axillary region on the opposite side and then place a plate of the proper size on the shoulder to be treated. A large plate that is cupped over the deltoid muscle will permit all the current to leave from the edges of the plate and no heat will be formed of any appreciable degree underneath the electrode.

If it is deemed necessary to treat the muscles of the scapula with diathermy, and in my opinion it never is except in chronic cases, then a plate of sufficient size over the scapula may be used. In order to get concentration of current in that region, instead of using a plate on the chest, it is better to have the patient lie face downward on an autocondensation pad and really give the patient autocondensation with the current entering the body through the area it is desired to affect.

When it comes to the application of diathermy to the subdeltoid bursa, it must be remembered that the bursa is never more than an inch in diameter. Therefore, if an electrode the size of a quarter is used over the bursa and one in the opposite axilla, the amount of current it is safe to pass through the bursa is limited due to the current density on the smaller electrode. It should be remembered that chronic bursitis is frequently accompanied by an anaesthesia and many cases have been burned in an attempt to force a large dose of current through a too small electrode. In order to localize the high frequency current through such a small area, the technique of grounded autocondensation was adopted in hospitals where I work and produces the most satisfactory results. To utilize autocondensation in bursitis, and it can be used elsewhere, the patient is given regular autocondensation reclining on a thick autocondensation cushion and holding a handle connected with one terminal of the machine, the other being connected with the plates on the back of the pad. A current of from 800 to 1,000 milliamperes is given and the operator places a finger over the bursa, thus short-circuiting the current from the patient around to the ground which is also connected with the metal plates under the pad. In this way all the current is drawn from the patient through a very small area. When the skin gets too hot under the finger, another finger is placed adjacent and the first finger lifted off and the whole area of about an inch and a half is subjected to the great flow of the high frequency current through it and consequently is diathermized in a most successful way. The amount of current used sometimes is only about 600 milliamperes according to the sensitivity of the patient's skin (and also the operator's finger tips.) This is done for about ten minutes and it is surprising how it helps in the treatment of these conditions.

Diathermy and other forms of heating tissues are most popular at these times, but merely heating up the tissues is only doing about half the job. Through our local hyperemia we assist the body to gradually remove infiltration but it is incumbent upon us, if we are able, to do more. Consequently it is the rational treatment to follow diathermy or other applications of heat with the static current, most conveniently applied as the brush discharge. This current being of high voltage and consequently under great pressure is by far the greatest decongestor known to therapy. When we congest a part physiologically by the application of heat, we can decongest and wash out much infiltration if we follow the diathermy with static current. Some people think that massage and the sinusoidal current will do what static will, but I can most authoritatively state that these people are misguided. There is no doubt but that massage and sinusoidal electricity are very valuable parts of physical therapy but they cannot replace static electricity and no department is complete to do the best possible work with physical therapy unless it utilizes static.

Of course sinusoidal electricity will induce muscular contraction and is extremely helpful. It will aid many cases of painful shoulder when a static machine is not available but it will not do the most perfect work. Massage and exercise also will help a great deal and there is a great field of usefulness for exercise when it is properly conducted. It is a shame that physical therapy has been given a black eye by the general belief of the medical profession that all massage and exercise is of the variety handed out by the ignorant, foreign masseurs. Massage and exercise to be properly administered are a good deal like other modalities of physical therapy in

that they need a good deal of brains behind them and not merely a knowledge of how to rub the skin when the hands more properly should be scrubbing floors. The one bone of contention at the Medical Center between our service and the fracture service is that the surgeons on the latter service think that passive exercise is of the variety administered by the itinerant masseurs, who seem to believe that the harder they can swing on a joint, the quicker will be the recovery. Exercise is getting to take a more important place almost every day. With painful shoulders where there is a possibility of muscular atrophy and in fractures and dislocations, active exercise within the limits of pain is the best method of attempting to prevent muscular atrophy. Assistive exercise, of course, will help and in many conditions passive motion is necessary.

Book Reviews

WATSON, FREDERICK: *Civilization and the Cripple.* John Bale, Sons and Danielson, Ltd., London, 1930.

This is the first survey of the cripple as a social and industrial problem. Mr. Watson is singularly fitted for this task as he has been the editor (and indeed the founder) of "The Cripple" an international quarterly. He has studied closely the economic loss through cripples and crippling diseases while serving as a County Director of the British Red Cross Society, Chairman of the Montgomeryshire Voluntary Orthopaedic Association and Deputy Controller, Appointments Department, Ministry of Labor during the days of demobilization after the war. Apart from this statistical outlook he brings a rare gift of humanness to his work and dedicates this book to Sir Robert Jones.

The foundation of the traditional concept of the cripple and his place in the life of the world is rather appalling as outlined in the chapter on "The Historical Background." Mr. Watson traces the path from the dim ages to the dawning of social consciousness and responsibility, listing the acts and statutes (in England in particular), attempting to mitigate the conditions controlling crippling diseases, social reform and progress of orthopaedic surgery and after care. Even the World War contributed to the forward march of events as the curative workshops and rehabilitation centers have developed rapidly in the last fifteen years.

Chapters of great interest outline the English program and that of the United States in the handling of this social problem and here Mr. Watson shows a most remarkable understanding of the American people and American ideals. It is impossible in the brief confines of a review to give any idea of the vital food for thought, the clarity of the summary of social programs and the possibilities of betterment of existing methods and further advancement.

It is a book that no one interested in welfare work, orthopaedic service, physical therapy and rehabilitation can afford to be without. Indeed the wider its public circulation the quicker would the crippled child and the industrially handicapped approach a normal existence as Mr. Watson emphasizes the needful cooperation between patient—doctor—hospital—physiotherapist—occupational therapist—and welfare worker.

The book may be obtained from The International Society for Crippled Children, Inc., Elyria, Ohio, for $2.50. It is the hope of this reviewer that each one who reads the book will receive as great a thrill as she, both from the beauty of the text and the feeling of brotherhood as one having a part however small in such fine work as typified by the courageous slogan of Chailey—"MEN MADE HERE."

RUSSELL, ELEANOR H., M. D., B. S., and W. KERR RUSSELL, M. D., B. S.: *Ultra-Violet Radiation and Actinotherapy.* Wm. Wood and Co., New York, 1928. $6.50. Third edition.

An excellent handbook for those using ultra-violet rays from their various sources. It is clearly written and is the result of painstaking research, clinical observation and extensive reading. A glance at the table of contents and a subsequent verification in the text satisfies one that here are answers to many questions: Chemical Properties of Ultra-Violet Radiation; Physical Properties of Ultra-Violet Radiation; Biological Effects of Ultra-Violet Radiation; Pathology of Solar and Ultra-Violet Radiation. There are excellent pages on technique and specific dosage while the 259 illustrations amply visualize the text.

This will prove a practical reference and a thoroughly welcome addition to the physical therapy library.

MULLINER, MARY REES, M. D.: *Mechano-Therapy.* Lea & Febiger, Philadelphia, 1929. $2.75.

As indicated on the title page this is a text book for students giving a comprehensive survey of the field of mechano-therapy. The modalities of the therapy are well described and their prescription to certain conditions is admirably conservative. The gymnastic orders and the illustrations of the exercises are valuable to those doing individual or corrective gymnastics.

Treatment of Infected Wounds by Means of Brine Baths

By Mabel E. Holton, Department of Physical Therapy, University of Michigan,
Winner of the First Prize, Physiotherapy Review Contest

For many years boric, brine, or hot sterile soaks have been used to aid in the healing of infected or slow healing wounds and ulcers. As usually given this form of treatment could be applied only to the hand, foot or lower leg. However, much difficulty was presented when the wound to be treated was located in the thigh or hip.

For some time 1 per cent solution salt baths had been used, for such conditions as anterior poliomyelitis, arthritis and reduced congenital dislocations of the hip, as a medium in which exercise could be done with a minimum of resistance, the solution counteracting the force of gravity. It was observed that any decubitus ulcers or abrasions healed more quickly when placed in these baths. The use of these brine baths was therefore extended to the treatment of certain infected wounds such as post operative osteomyelitis.

The equipment used consists of a bath tub 5 feet 6 inches long. This is raised from the floor so that the upper rim is 34½ inches from the floor (the height of a stretcher) and is placed so that it is accessible from two sides and one end. This reduces the amount of lifting necessary.

Both inlet and outlet controls are outside of the tub to prevent contamination, although an ordinary bath tub has been used with no instances of infection following use by these cases. A broad strap is used to hold the patient's head as he lies in the tub. This may be a cloth or webbing band hanging from two points in the ceiling, or tied around the tub near the head. A bath thermometer, a rubber sheet 6 feet by 36 inches and a close fitting rubber cap are also required. The salt used is a clean, medium grade. It should dissolve readily and leave no cloudiness or sediment in the water. The proportion used is tested by hydrometer until the proper amounts are determined for each tub.

The method of preparing the bath is as follows: The amount of salt needed must be determined by hydrometer readings, since this varies with the size of the tub used and the amount of water. Once determined however, readings need not be taken for each bath. The specific gravity at the beginning should be between 1040 and 1050. For a tub of the size described this amounts to 12 pounds of salt for a tub half filled with water. The temperature should be between 35° C. and 36° C. (95° to 97° F.)

Before removing the patient from his bed to the stretcher a large sheet should be folded to half its width and placed crosswise at about the middle of the stretcher. The ends can be folded across the patient until ready to place him in the bath. The large outer dressing is removed before the patient is placed in the tub.

If the patient is in a cast he is gently lifted, the cast removed and the patient replaced on the sheet; being careful to maintain the position of immobilization. The ends of the sheet are grasped firmly and the patient gently lifted into the tub. THE POSITION OF IMMOBILIZATION IS ALWAYS MAINTAINED until the weight of the body is counteracted by the buoyancy of the water. The ends of the sheet are allowed to hang outside of the tub and are thus kept dry. When the dressings are thoroughly soaked they are gently withdrawn from the wound. Large packings, which previously could only be removed under gas dressing because of pain, can be removed in this way with very little discomfort to the patient. Vaseline packs are preferable since they can be withdrawn from the wound more easily.

If the wound is deep further cleansing is done by irrigating with a warm 1 per cent solution of salt while in the bath. Rubber gloves are worn, of course, when handling the patient in the tub.

The patient is encouraged to move about in the bath as long as pain is not caused by the movement, thus receiving general exercise. At the same time special emphasis is placed upon the active exercise of contiguous ioints to maintain muscle and joint function.

The patient may remain in the tub from 15 to 30 minutes, but never to the point of fatigue. The temperature is maintained by the addition of hot water. At the end of the bath the patient is lifted on to the stretcher by means of the sheet. The stretcher has previously been covered by a rubber sheet whose edges are folded to prevent the spilling of water on the floor. Pillows may be placed under this rubber sheet to maintain the position of immobilization until the cast can be replaced.

The patient is then dried and the wound wrapped in sterile towels. The cast is replaced, the patient made comfortable and returned to the ward for dressing by the doctor.

The tub is cleansed by the use of scalding water, lysol and soap chips. In addition to this the tub is scoured about once each day with scouring powder. The rubber sheet and all articles used are washed in lysol solution. Bacteriological tests show that this method eliminates all danger of infection.

In no case has a vaginitis or secondary infection of any kind appeared even though the wound was filled with thick greenish pus. After two or three baths the wounds usually presented a clean appearance, with only a clear serous discharge, good granulation tissue appearing and the wounds filling in rapidly. The patients have also felt rested following the baths and the general condition improved markedly.

To date this treatment has been used in 25 cases. A resume of three cases treated by this method follow. These three are typical cases.

Case 1. W. D. White, age 8, female. Admitted 9-4-29.

Chief complaint—acute pain and swelling of left hip.

Operative treatment—immediate incision and drainage of a large pocket of pus.

Progress Notes—recovery slow with considerable pain in hip. Check-up x-ray 10-10-29, "a decrease in the joint space of the left hip with destruction of part of the head of the femur and acetabulum." Blood, urine and Kahn were negative. Gas dressings done until 9-25-29.

9-25-29 patient presented a deep wound about 7 inches long, comprising the anterior portion of a Smith-Peterson incision.

Any attempt at motion was extremely painful. The wound was clean.

9-25-29 Physiotherapy. Brine baths started. 18 baths were given from 9-25-29 to 10-29-29 inclusive. During these baths the wound was irrigated with a 1 per cent

salt solution while in the bath. Irrigations discontinued 10-29-29 because wound was completely filled in. 20 baths without irrigations were given in period of 10-30-29 to 11-26-29.

10-16-29. "After receiving physiotherapy for 3 weeks there was considerable motion in the left hip, about 15 degrees of flexion and slight lateral motion."

11-27-29 Patient discharged. Patient was using crutches with partial weight bearing.

Case 2. P. J. Colored, age 27, female. Admitted 11-11-29.

Chief complaint—pain in left leg just below knee, since 1923.

Diagnosis—Brodie's abscess upper end left tibia.

Blood, urine and Kahn were negative.

Examination showed a "sinus with purulent exudate on anterior surface of left tibia. X-ray revealed an old osteomyelitis of upper end of tibia and fibula with an area of abscess at upper end of tibia."

Operative treatment 11-20-29. The tibia was saucerized. Leg was placed in a cast. Post operative condition excellent.

11-20-29 Patient presented a wound 6 inches long, 2 inches wide and 1½ inches deep. Patient resisted all motion in knee.

Physiotherapy. 12-4-29 to 12-27-29, 17 brine baths were given with irrigations while in the tub.

12-27-29. Wound 2 inches long with no packing. 100° range active, painless motion in knee. Wound was clean.

Progress note—"Patient's convalescence was entirely uneventful and she was discharged home to be up and about on crutches with a brace. She was also instructed to continue brine baths and dressings to the knee.

Discharged 12-28-29.

2-5-30 "Wound healing in nicely. Pain entirely relieved."

Case 3. W. B. White, age 9, male. Admitted 10-1-29.

Chief complaint—purulent infection involving lower part of knee with continuous fever, pain and swelling since July 15, 1929. Knee had been opened and drained. Culture at that time showed staphlococci.

Examination—An enlarged, painful knee with thickening of left femur. X-ray demonstrated an osteomyelitis with no involvement of epiphysis or joint.

Operative treatment 10-7-29 "saucerization of the femur with sequestrectomy and drainage of abscess." A long hip spica was applied. Gas dressings were done until 10-31-29. Patient was transfused at the time of operation and this was repeated two weeks later.

12-3-29 Patient presented a wound extending from the external condyle to the junction of the upper and middle thirds of the thigh. 90° free motion in knee. Further motion extremely painful.

Physiotherapy—Brine baths were started 12-3-29 with movement of his knee under water. 12 baths with irrigations were given between 12-3-29 and 12-24-29.

12-24-29 Wound still extended along lower two-thirds of thigh but was shallow. 90° free action. Painless motion maintained. Wound was clean.

Progress Note—"Patient's general condition very rapidly improved during the last two weeks of his stay in the hospital and on 12-24-29 he was discharged home with his parents, with instructions as to his exercise and brine baths."

12-24-29 Discharged.

Summary:

Baths using a hypertonic solution of salt have been found to be of benefit in the treatment of cases of infected and slow healing wounds such as pressure sores and post operative sloughing wounds.

Irrigation of the wound may be done while the patient is in the tub.

No spread of the infection has occurred.

The thick, purulent discharge has rapidly subsided.

Granulation tissue has quickly filled the wound.

The general condition of the patient has improved rapidly.

This type of treatment can be given with comparatively simple equipment.

Exercise of the joints and muscles can be started at a much earlier period after operation than is possible if such treatment is delayed until the wound is healed or nearly healed.

The Nurse's Responsibility in the Treatment of Chronic Diseases by Radiation from the High Intensity Carbon Arc

By Margaret Valentine, R. N., The Taft Heliotherapy Ward, Cincinnati General Hospital

The medical profession agree that the sun bath is definitely beneficial as a therapeutic and prophylactic agent. (1-2-3-4) In the treatment of many chronic diseases sunlight has helped when other measures have failed. (5-6) Present indications support the opinion that uninterrupted treatment is desirable for it would seem to give the improvement in the shortest time.

The usefulness of this form of treatment has been restricted by the fact that continuous sunlight is lacking in many localities during the winter months, and is uncertain in summer, while its intensity and spectral characteristics both undergo hourly variations over which we have no control. When depending upon this source of radiation our patients progress during the summer months, but, the good accomplished is greatly diminished by the cessation of radiation during the winter months. The patients become depressed, and the nurse harassed, trying to alleviate patients' mental anxiety regarding their physical progress. Uninterrupted applications of radiation should mean a more rapid recovery and mitigation of this incessant strain.

For a number of years the medical profession has been looking for a lamp the radiation from which duplicates that of the sun and which may be used in those regions where sun is not available all the year round. (7) With the many so-called "sun-lamps" on the market, divers opinions have been expressed with regard to the most desirable source of artificial radiation. In June 1926, however, the statement was issued by the United States Bureau of Standards that the Schwartz High Intensity Carbon Arc Lamp, developed in the Taft Heliotherapy Ward, Cincinnati General Hospital, had a spectrum comparable to that of sunlight. (8)

The Taft Heliotherapy Wards at Cincinnati General Hospital were opened October, 1924 through the generosity of Mr. and Mrs. C. P. Taft and under the supervision of Doctor G. J. Heuer. Through the cooperation of Doctor R. Plato Schwartz, Doctor A. C. Bachmeyer, Dean of the College of Medicine of the University of Cincinnati, and Mr. A. H. Weisbrodt, Mechanical Director, Cincinnati General Hospital, the first lamp was constructed in the Mechanical Department of this institution, and placed on the Ward April 1925. In 1926 a new equipment was placed in operation followed by a second. (These new units were built by the Willey-Wray Electric Company of Cincinnati.)

It has been the privilege of the writer to observe the advantages resulting from having a measured source of radiation. The following observations were made from the reaction of patients to the Schwartz High Intensity Carbon Arc Lamp, used at the Cincinnati General Hospital, with which twenty patients can be treated simultaneously. (Fig. 1 and 2)

It is hoped that the following will be of some benefit to the nurse interested in the administration of artificial radiation. First, in any new form of treatment the nurse's powers of observation are most needed. The possibility of undesirable effects may be avoided by close observation on the part of the nurse of variations in the reactions of different patients. Second, it is important that every nurse realize that radiant energy is not necessarily a harmless form of therapy but that it can be harmful and must be given with the greatest care. Therefore, a knowledge of the mechanism is extremely important.

The above mentioned lamp consists of four arcs arranged in a circle around a central support and held at an angle parallel to that at which the patients are treated. This design provides for the equal distribution of radiation in the treatment room. The circle is fourteen feet in diameter and the lamp is suspended eight feet above the center, while the inclination of the arc places the patient

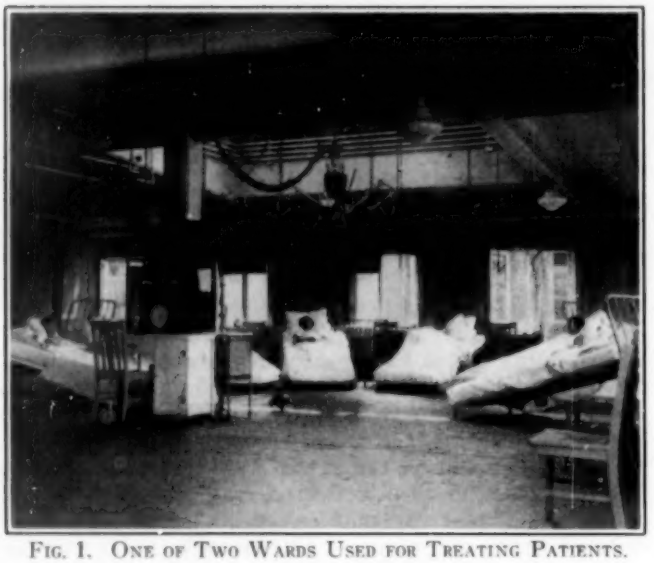


FIG. 1. ONE OF TWO WARDS USED FOR TREATING PATIENTS.

in the optimum position for receiving the greatest amount of radiation at right angles to the radiating source. The lamp is counterbalanced on a cable and triple pulleys by which it is lowered for adjustment of the electrodes (carbons). The automatic control of each arc through individual celenoids, suspended around the central support, is made possible by the chain and pulley mechanism which connects the celenoid plunger to the friction clutch on the upper carbon holder. Each arc operates at 90 amperes and from 68 to 70 volts on a 220 volt D. C. circuit. The carbons must be put in straight and the distance between them while in operation must be kept equal to insure smooth operations. The flame may go out, sputter, hiss; or the arc may not go on when the switch is closed; or soot may be thrown off when the carbons fail to separate. The nurse should know what is wrong and either be able to correct it, or know how to have it done. This will save time and stimulate interest in her work.

In the beginning, patients were treated twice a day, seven days each week. It has since been thought advisable to treat patients less often, thus retaining a sensitivity to radiation. Observation has seemed to show that when a patient develops a slight erythema after each treatment there will result a more noticeable and more rapid progress. This can only be secured by short treatments of not more than thirty minutes and not oftener than once daily, preferably every other day.

The ventilation and temperature of the room where treatments are given are the nurse's responsibility. A slight rise in temperature and an odor from the burned carbon will be noted after the lamp has been on for fifteen or twenty minutes; adequate ventilation will overcome this. Patients will often object to the room being too cool, but seldom that it is too warm. This makes it necessary for the nurse to be very sure there are no draughts which may prove harmful to the patients or blow out the arc.

The importance of moving air currents can not be over-estimated where there is a flaming arc. The temperature of the room should not be more than 70° Fahrenheit. A cool atmosphere will stimulate the cutaneous surface. As the patient takes more and more radiation he will be able to stand a cooler atmosphere in the room.

Recording thermometers registering a twenty-four hour record are in each ward as a guide in regulating the temperature of the rooms at all times. It is also possible to determine the temperature in the sun and shade by means of a recording thermometer hung in one ward.

It is considered unwise to leave the room where patients are being treated, for we are dealing with direct current of unusually high amperage, which may prove harmful to those present and ruin the apparatus. Unless the nurse is watching the lamp and observes when the carbons become short, the flame may come in contact with and burn the shields or carbon holders. It is necessary to aid patients in becoming accustomed to the high intensity arc and to explain just how it will act; few expect to see a flaming arc and some may become alarmed. Patients must not be allowed to state when and how they shall be treated as this causes confusion and delays the patient's progress. If the patient's confidence is gained by skillful operation of the lamp, the dictations will usually be avoided. In the beginning, children are prone to be restless but this is soon eliminated if the nurse will stay at their bedside during the first few treatments.

Patients must be watched very closely after receiving their first treatment. It is not known definitely how a patient will react until he has been treated. Using the high intensity arc already mentioned, patients are started with two minutes posterior and two minutes anterior. In most cases this produces an erythema which will vanish in twelve hours; if so the time is increased gradually. If the patient has a mild erythema the previous treatment may be repeated. But if there is a definite erythema, twelve hours after the exposure sufficient to cause a slight itching, no radiation is given that day. The length of the exposures is then governed by the patient's reaction,—not more than thirty minutes per day—six days a week. The eyes must be kept covered by goggles or conjunctivitis will result. Treatment is contraindicated if the patient has a severe headache or suffers from fatigue after radiation, has a temperature of 101 or over, or increased pain in the chest. We cover with a towel the chests of patients suffering with pulmonary tuberculosis; but whether this is necessary or desirable has not as yet been determined.

WARD ROUTINE

I do not deem it necessary to give a detailed ward routine, assuming that the readers of this article are familiar with the general hospital care of patients.

However, in connection with the general ward routine we include the following special care.

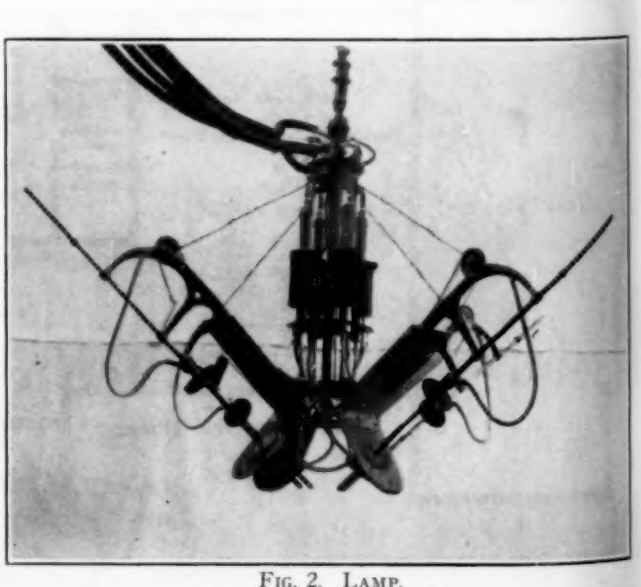


FIG. 2. LAMP.

Hours

9:30 A. M. and 3:00 P. M. Nourishment is given to all patients (milk, cocoa or orange juice as desired).

9:00-11:00 A. M. Carbon arc and sun treatments are given. Beds are remade after treatment.

11:00 A. M.-1 P. M. and 5:00 P. M.-6 P. M. Radiation is given to members of the Hospital staff, Medical staff and Nursing staff.

1:00 P. M.-3:00 P. M. Two hours of complete rest and quiet.

3:00 P. M.-4:30 P. M. Academic and occupational therapy teachers work with the patients.

Wards are closed at 9:00 P. M. and ventilation regulated sufficient to keep the thermometer at about 60° F.

In addition to the above, there is the usual routine of staff rounds, special treatment as venous punctures, blood transfusions, Tuberculin tests, the making of supplies, etc., which are common to the wards of any general hospital.

To accomplish this, an adequate personnel is required, namely a medical staff consisting of a director, a houseman, one interne, a head nurse, four graduate nurses and a technician. There are two female attendants and two male attendants. One man is employed to care for lamps and all other apparatus in the department and to assist in treating male patients. There are two orderlies, and two kitchen maids.

Each member of this personnel works eight hours. One graduate nurse is on duty from 11 P. M. to 7 A. M., one from 7 A. M. to 3:30 P. M., and a third from 2:30 P. M. to 11 P. M., while the fourth assists the nurse in charge. The graduate nurses assist with the dressings and give all treatments and medications, take all temperatures, assist with sickest patients, and give radiation.

The attendants give baths, rub backs, and do much of the bedside care. One male attendant remains on the wards from 7 P. M. to 7 A. M. Two orderlies arrange patients for treatment, lower the beds and, after treatment, replace them. (This is men's work and should not be attempted by nurses.) The two orderlies mop all floors, keep windows clean, go errands—diet kitchen, laundry, drug department, and take patients to X-ray and clinic.

The food comes to the ward in bulk and the two kitchen maids, under supervision of nurse in charge, serve it, wash dishes, cook when necessary, and keep the kitchen clean.

With the above personnel it is possible for the nurse in charge to give the personal touch so essential to the sick, which without question is an aid to their most rapid progress. Diet has always been a problem between nurse and patient, which on the whole remains unsolved. Our patients receive what is known in hospitals as the general diet. Patients are encouraged to eat. An average of thirty quarts of milk a day are used for twenty-five patients. Every one receives additional nourishment at 9:30 A. M., 3 P. M., and 9 P. M.

The keeping of records is a very important part of the work. An accurate record of all radiation is kept by means of graphic charts (Fig. 5). If radiation is omitted the reason is stated very definitely. The amperage, voltage, and temperature at the time of treatment is recorded as is the outside temperature in the sun and shade, when sun treatment is given.

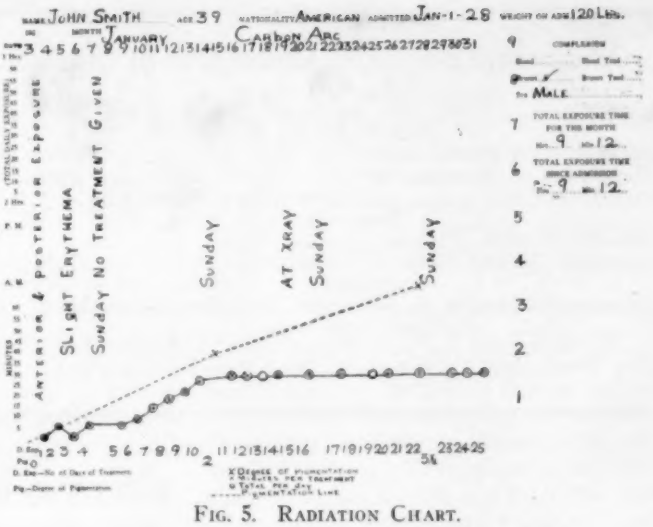


FIG. 5. RADIATION CHART.

Every two weeks patients are weighed and their pigmentation is measured by means of a Pigmentometer (suggested by Doctor A. N. Robertson). The above records are made and kept by the nurse in charge. Other records are made by the medical staff and technician, and are as follows: Physical examinations, Basal Metabolisms, Vital Capacity, X-ray Plates every three months, Urinalysis every month, complete blood count every two weeks, and clinical photograph on admission and discharge.

* * *

CONCLUSIONS:

1. Sunlight has become an accepted therapeutic agent.
2. The combination of climatic and local and seasonal conditions delays the progress of treatment when sunlight alone is used in many localities.
3. A constant source of measured radiation closely approaching sunlight is now available, namely, the High Intensity Carbon Arc.
4. Certain fundamental knowledge is essential for the successful application of any form of treatment; the use of the High Intensity Carbon Arc is no exception.
5. The nurse's responsibility, the personnel required, and the routine essential for the daily care of thirty-five patients have been carefully set forth.

* * *

REFERENCES

1. HEUER, G. J.: University of Cincinnati Medical Builetin, November, 1926; Cincinnati Journal of Medicine, February, 1924.
2. ROLLER, A.: Die Heliotherapie der Tuberculose, 1913.
3. WATSON, S. H.: Southwestern Medicine, January, 1925.
4. SCHWARTZ, R. P.: Modern Hospital, March, 1926, Vol. 28, No. 3.
5. HEUER, G. J.: Heliotherapy as an adjunct in the Treatment of Chronic Surgical Conditions (Reprint).
6. SCHWARTZ, R. P.: Boston Medical and Surgical Journal, Vol. 191, No. 6, pp. 249-252, Aug. 7, 1924.
7. FREIBERG, A. H.: Journal of the American Medical Ass'n., Vol. 86, pp. 731-735, March 13, 1926.
8. Bureau of Standards, Scientific Paper, No. 539.
9. SCHWARTZ, R. P.: Journal of the American Medical Ass'n., Vol. 88, pp. 632—Feb. 26, 1927.

Officers and Executive Committee of the American Physiotherapy Association, 1930-1932

President

EDITH MONRO.....Suite 101, 483 Beacon Street, Boston, Mass.

Vice Presidents

JOSEPHINE RATHBONE .....
Department of Hygiene, Wellesley College, Wellesley, Mass.

EMILY J. GRIFFIN.....21 Church Street, Montclair, N. J.

Treasurer

MABEL E. HOLTON.....
University Hospital, University of Michigan, Ann Arbor, Mich.

Secretary

CONSTANCE K. GREENE.....53 Burpee Road, Swampscott, Mass.

Members-at-Large

PAULINE MANSFIELD.....20 Maple Street, Springfield, Mass.

HAZEL FURSCOTT.....Fitzhugh Building, San Francisco, Calif.

Director, Bureau of Appointments

C. GRACE COURTER.....233 East 17th Street, New York, N. Y.

Chairman, Committee on Education and Publicity

MARGUERITE I. IRVINE.....1011 Summit Avenue, Seattle, Wash.

Chairman, Legislative Committee

MATHEA BOXETH .....
Department of Physical Therapy, Medical Center, New York, N. Y.

Advisory Committee

To be appointed.

All changes of address must be sent to the Secretary, Treasurer, Director Bureau of Appointments and General Manager of the Review. This will assure delivery of important notices and of the magazine. No second class mail is forwarded.

EDITORIALS

A Presidential Message

The 1930 convention, held recently in Detroit, marks off another milestone in our association history.

The incoming officers deeply appreciate the splendid foundation laid by those of preceding administrations.

There has been an ever increasing growth and spread of membership. Several chapters have sprung up, north, south, east and west, until we can now claim to be distinctly national.

We are rejoicing today over the victory won in the long battle for the preservation of our name, our cherished birthright. The old, overworked quotation, "What's in a name" and so forth hardly applies to ours. It stands for more than beauty and fragrance. Our name embodies all our professional hopes and fears. We strive always to be essentially an American organization, and one composed of earnest, well trained workers, who have built up a profession with their own untiring effort and experience.

Let us then not give a sigh of relief, feeling that no further effort need be expended, but rather draw in a new, invigorating breath, in preparation for carrying on in such a way that through each one of us the name of the American Physiotherapy Association shall represent an outstanding power.

"A chain is no stronger than its weakest link." Let us, in fashioning this professional chain, which links us from coast to coast, strive to have each chapter, each committee, and each individual, take this responsibility.

Your new president greets you all and looks forward to meeting you at the next convention. Best wishes for the coming year!

EDITH MONRO.

Boston, Mass., July 31, 1930.

It will be remembered that the REVIEW had a contest for the three best papers relating to physical therapy open to all members of the A. P. A. in good standing Mar. 1, 1930. The first prize was fifty dollars and a life membership in the American Physiotherapy Association; the second prize a life membership and the third honorable mention. Elsewhere appears the winning paper, "Treatment of Infected Wounds by Means of Brine Baths," by Mabel E. Holton, of Ann Arbor, Mich., and following are the letters from the three judges. They speak for themselves. The second place was won by Beulah Rader and the third by Julia Tuggle, both from San Francisco. Their papers as well as those of the other contestants will appear in succeeding issues of the REVIEW.

May 15, 1930.

To My Fellow Judges:

I trust you are as enthused as I am by this admirable group of papers.

Indeed, I am so impressed with them that I would be glad to see, and would help to finance, a yearly prize—or prizes—to be given for the best paper—or papers—submitted during each year on any branch of physical therapy. I should like to see such prizes valuable enough to stimulate competition, to have them open to all physical therapy aides, members of the American Physical Therapy Association, or full time workers in university laboratories; but would add a proviso that the prize—or prizes—would not be given if the papers did not come up to standard requirements.

For the next generation or two, the medical profession will have to tell its physical therapy aides what it wants done. The physical therapy aide will have to show the doctor what can be done. This, because physical therapy is not yet taught adequately in medical schools. I tell my druggist, my laboratory man, my roentgenologist, what I want done. He tells me how much of what I want can be done. I do not stand over him while he is doing it—nor, for that matter, do I know, or very much care, how he does it.

I feel very strongly that the fewer medical heads we have to clinical physical therapy departments, the sooner will the profession as a whole become physical therapy minded.

Now, as to the papers before us:

(1). "Physical Therapy at Home and Abroad." Is ambitious, interestingly historical, and descriptive. I cannot see that anyone is the better able to do his bit by reason of it. So I vote against it.

(2). "Overcoming Postural Handicaps" (copyright applied for). It is admirable in every way, but it is a sort of limited text book. I do not think it comes within the scope of this competition any more than would Sampson of Granger's more comprehensive works.

We are attempting to stimulate interest which shall show itself in more and better papers for the REVIEW rather than for exhaustive treatises. For this reason, among others, I vote against it.

(3). For wide application to common human ills, I think Emily Griffin's "Why I Included Internal Hydrotherapy" takes precedence. Her style is sufficiently lucid, her detail sufficient, her photographs inadequate, and colonic flushing *is* physical therapeusis. On the other hand, not one physical therapy aide in a hundred includes colonic flushing in her repertoire—nor is it taught in the schools for physical therapy. Therefore,

until such time as high colonic flushing is an accepted and accredited part of the physical therapy aide's work, I think this very excellent paper has to be counted out.

(4). "What Is a Physiotherapist?" is an excellent paper but I can't see that it helps a physical therapy audience to do better work. It is written in a "popular science" manner, and would most effectively be addressed to a lay audience or to one composed of general practitioners of medicine who had graduated before physical therapy had begun to be considered in recognized schools of medicine. As a piece of legitimate propaganda it is excellent, but I find nothing new in it, nothing that will help other physical therapists to become more efficient in their special field of endeavor. I should not vote for it in a competition of this sort.

If you agree with me, this leaves us four papers to consider:

A. "Treatment of Infected Wounds by Means of Brine Baths."

B. "Coordination Exercises Under Water for Spastic Paralysis Following Fracture of the Fifth Cervical Vertebra."

C. "Ionization in Hypertrophic Rhinitis and Suppurative Otitis Media."

D. "The Relief of Neuritis by Physiotherapy."

They appear to me to be proper papers for this competition. One is a better physical therapist for having read anyone of them.

Of these four, I find the writer of the last to be vague in her conception of the pathology she is called upon to treat. Her paper, while showing evidence of much clinical sense, is less scientific in its construction than the other three. All three of the others present evidence of comprehended pathology and of scientific construction.

It seems to me, however, that "Treatment of Wounds by Means of Brine Baths" and "Ionization in Hypertrophic Rhinitis and Suppurative Otitis Media" will prove helpful to the greatest number.

Not many physical therapy institutions will have available the type of swimming pool mentioned in the paper "Coordination Exercises Under Water for Spastic Paralysis Following Fracture of the Fifth Cervical Vertebra." In 1898, I was treating badly infected wounds at the New York City Hospital by baths in bichloride of mercury 1-15000 to 1-20000. The new thing here is the substitution of hypertonic salt solution and irrigation of the wound while submerged in the bath.

The paper, then, on "Ionization in Hypertrophic Rhinitis and Suppurative Otitis Media," I find

(1). Of demonstrated value in an exceedingly large number of cases.

(2). Accurately describing the detail of treatment.

(3). Comprehensive where the specific pathology is concerned.

(4). Scientifically constructed and

(5). Above all, suggestive! If ionization will clear up these specified conditions, is it not a question merely of evolving a technic whereby identical treatment may be employed in treating identical pathology in other parts of the body?

For these reasons, I find this paper the most helpful, the most stimulating, of the group here presented.

It is not as dramatic as some of the others; but the dramatic element can, in a contest of this sort, be considered, at best, a by-product.

What we are looking for is that which will help the greatest number of aides, benefit the greatest number of sufferers, and yet be suggestive of wider fields waiting to be explored.

To conclude: I vote

(1). For the Ionization paper.
(2). For the Brine Baths for Wounds.
(3). For the Coordination Exercises under Water.
(4). For the Relief of Neuritis paper.

To all the others should be accorded honorable mention. They have each advanced the cause of physical therapy.

Very cordially yours,
JAMES T. WATKINS.

To Fellow Judges:

I was impressed by the high type of the papers submitted in this contest, and agree with much that Dr. Watkins has stated. One thing that I want to take issue on is that physical therapy departments should not have a medical head. I, believe that all treatment should be supervised by physicians, and surely this was proven in the case of x-ray departments. The recent report of the Council on Physical Therapy of the A. M. A. on education should be the guiding point in this respect, and it recommends that internes be assigned to the physical therapy departments. I am consulting physiotherapist to the Illinois Central R. R. Hospital where this has been tried, and it has improved our physical therapy and is educating many future doctors. This would be impossible if a physician did not head the department. At Northwestern University Medical School and Hospitals we have a physician to head our department, and are thus enabled to conduct clinics for physicians, post graduate courses for physicians, courses for undergraduate medical students and for technicians. I believe that the sooner all physical therapy is done under the direct supervision of physicians, the sooner will the whole profession become physical therapy minded. The constitution of this association states that their members agree to only treat cases under a physician's supervision, and surely this is best accomplished by the physical therapy department having a medical head.

PAPERS.

I vote as follows:

First: "Treatment of Wounds by Means of Brine Baths" because it has the greatest value for the greatest number and is well written.

Second: "Ionization in Hypertrophic Rhinitis and Suppurative Otitis Media." I would have placed this first, but I submitted it to a physician in our Ear, Nose and Throat Department and he thought she should have looked up the literature, and quoted some authorities in this special field that have written on this subject. Otherwise he thought it an excellent article, and so I place it second.

Third: "Coordination Exercises Under Water for Spastic Paralysis." This is an important and neglected part of physical therapy. This brings our attention to a method of treating these cases that are often neglected.

Fourth: "Overcoming Postural Handicaps." This is the best article of the series, and should be published in the PHYSIOTHERAPY REVIEW, but I agree with Dr. Watkins that it is almost too long to consider, but I could not place any of the other papers in the class with the above four so I vote for it for the fourth place.

J. S. COULTER.

To Fellow Judges:

I most strongly agree with Dr. Coulter and as strongly disagree with Dr. Watkins concerning the necessity of having a medical man direct all treatments in a department of physical therapy. Even though this is beside the problem at hand, it is worth noting immediately. I could write a whole paper stressing this necessity.

As far as the papers go: "The Treatment of Wounds by Means of Brine Baths" I would rank as number one as it outclasses the other papers as to structure and the way the subject is presented. "What is a Physiotherapist?" I would place second as it is a good discussion of a question all in physical therapy do not understand. All papers do not have to be strictly scientific to be worth publishing. It is always good to remind all professional people of their place in science and this paper helps. "Why I Include Internal Hydrotherapy" is good but does not rank with the other two mentioned as important to all physiotherapy aides. "Overcoming Postural Handicaps" is a copyrighted pamphlet and, though good, should not be considered in this competition. "Physiotherapy at Home and Abroad" is a good report but does not rank as a paper. The other papers are practically case reports and insufficient to be worth much scientifically.

I therefore would classify the papers submitted: No. 1, "The Treatment of Wounds by Brine Baths"; No. 2, "What is a Physiotherapist?"; No. 3 "Why I Include Internal Hydrotherapy."

NORMAN E. TITUS.

THE REVIEW owes its interest to the contributing chapters and the interest of the association is focused on these articles as the flame of the chapters' life. They serve to bind us together during the year and as a stimulus to greater professional effort. Existence would be tame indeed if we were content with past outlooks and points of contact. For the new fiscal year the numbers will be as follows: July-August, convention; September-October, Northern California, Southern California and Oregon; November-December, Rhode Island, Wisconsin, District of Columbia and Pennsylvania; January-February, Cleveland, Washington (state), Texas; March-April, Chicago, Minnesota and Michigan; May-June, Massachusetts, New Jersey and New York.

As this REVIEW goes to print a last word cable from the "Fashion Editor in Paris" gives the latest the well-dressed physiotherapist is wearing. At the convention William Filene's Sons Company sent several uniforms designed for the occasion and to be exhibited in the so-called "fashion show." One unfortunately did not arrive in time and it is this one to which the fashion editor gives her heartiest endorsement. Of the finest Irish poplin, with three pockets, link cuffs and roll collar it is made with a circular skirt fitted to the hip line and attached to the waist under the detachable belt. It is this fitted hip line and circular skirt which make it so extremely smart and yet so practical as it does not sag, bind, catch or creep-up as the straight-line uniforms do in the very active activities of the days' work. For those "wot 'as ips" it works wonders but also adds a "pleasant breadth" to those of match-stick proportions. Its number is "0195" of "Crest Brand" and Filene's address is simply Boston, Mass. Its cost is $5.95 and it certainly gives "that well groomed look."

Ninth Annual Convention of the American Physiotherapy Association

Held at the Fort Shelby Hotel, Detroit, Mich., June 23, 24, 25 and 26, 1930

Resume of the Stenographic Report.

MORNING SESSION, JUNE 24

Miss Hazel Furscott presiding, Miss Charlotte Ballard secretary.

Appointment of committee to approve the minutes of the convention: Miss Hahn, chairman, Misses Morrison and Walker, members. Program as printed accepted as the order of business of the convention but elections to fall on June 24 instead of June 26. Appointment of tellers for the election and report of the nominating committee. Two tickets submitted as follows:

President—Hazel Furscott, San Francisco; Edith Monro, Boston.

Vice Presidents—Beulah Rader, San Francisco; Sarah Kollman, St. Paul; Josephine Rathbone, Wellesley; Emily Griffin, Montclair.

Treasurer—Florence Burrell, Oakland; Mabel Holton, Ann Arbor.

Members-at-large—Winifred Tougas, Newton Highlands; Pauline Mansfield, Springfield; Helen Kaiser, Cleveland; Hazel Furscott, San Francisco. Signed: Marion Sweezey, Miss King and Miss Griffin. Election by delegates on ballots; report of balloting announced at end of the meeting showed the eastern ticket the winning one.

Reading of the president's report; the secretary's; the treasurer's; the director of the Bureau of Appointments; the editor of the PHYSIOTHERAPY REVIEW. By invitation Dr. Watkins of San Francisco read his paper on "The Physical Therapy Situation," following it with the suggestion of standardized records discussion of which was postponed until Thursday*. Chapter reports from Minnesota, New York, New Jersey, Pennsylvania, Wisconsin, Michigan, Northern California, Washington (state), Massachusetts, Chicago, Texas, and Cleveland were then given. The report of the special name committee (which was appointed at the last convention) was read, it has been printed in the REVIEW for March-April. The voting on the names suggested for the association was done by the delegates—all being voted down which brought an overwhelming majority in favor of the retention of "The American Physiotherapy Association." In view of this fact the executive committee presented the recommendation for incorporating under the laws of the state of Illinois and the following letter was read from Mr. McDavitt the legal advisor of the American Medical Association:

"Dear Miss Furscott: I must beg your pardon for the delay in submitting this information to you. I could have given you the information relative to incorporation some time ago, but delayed writing in order to have specific information on the costs on trademarking. In that connection I find it necessary to write to a firm of attorneys in Washington, D. C., whose letters arrived today. As I understand it the American Physiotherapy Association desires to incorporate as a corporation, not for profit, and also desires in some manner or other to insure to itself the sole use of that name, or another to be chosen. I shall discuss the incorporation features in one, and in two so much of the law as is material to your purpose in connection with the trademarking. 1. There are a number of advantages to a corporate incorporation, and particularly in the form known as a corporation not for profit. Without going into too much detail, it will suffice to say that in law a corporation is regarded as a separate entity apart from its members. As such it may hold property in its own name, sue and be sued without liability attaching to its individual members; do any lawful acts a private person may do within the scope of the powers granted to it by the state in which it is incorporated and may continue in business without regard to the death of individual members or stockholders. In the absence of corporate organization, an association such as your own may be unwieldly for the purpose of transacting its business or fulfilling its purposes. In suggesting a mode of organization for your association I have in mind the manner in which the American Medical Association is organized. That plan I believe is entirely adequate to your needs. The American Medical Association is organized in Illinois as a corporation not for profit. Its governing board, a board of trustees, is elected by its membership as a whole through delegates as are also the president and vice-presidents. The Illinois law on the subject allows such a corporation to hold an annual meeting outside of the state. This is a distinct advantage for such organizations as the American Medical Association and your own. Other states generally require at least one business meeting and the board of directors or trustees a year within the confines of the state. Should your association decide to adopt the corporate organization it would be necessary for three of your members to sign as incorporators, in addition to designating at least a temporary list of trustees. Possibly it would not be expedient for your association to have nine trustees as does the American Medical Association; it may be better to limit the number to five. That, howver, is a matter of policy which you can best decide. Knowing the internal workings of the organization, the expenses of incorporating, including costs to be paid to the state and the legal fees will be $150.00."

It was then moved, seconded and carried that the American Physiotherapy Association be incorporated under the laws of the State of Illinois.

Introducing the adoption of an insignia the second argument of Mr. McDavitt was read. "2. The only way in which it will be possible for the American Physiotherapy Association to secure the sole use of a name is to trade mark it with the Federal government. To trade mark a name it is necessary to attach the name in some manner to an emblem or sign. I therefore suggest that your association adopt some emblem representative of the profession, with the name you desire worked in the design in some manner. This can then be registered with the Federal government, and if a search reveals it is novel, that it is not already in use by some other organization which has registered it with the government, a trade mark will be issued insuring in effect the sole use of the name for a period of twenty years

*Note: The importance of these suggestions warrants more attention than can be given in a brief summary. A full editorial will be devoted to it in a coming issue of THE REVIEW.

at which time the right may be renewed for a like period. Were your association to desire this right I should probably refer to Washington, D. C., to Richardson and Geyer, an established firm of patent and trade mark lawyers. The actual government costs in the matter will be fifty dollars, ten for a search of prior registration and forty for the application for registration of the trade mark. I think the total cost would be under two hundred dollars, including the fee of the Washington law firm." It was then moved, seconded and carried that an insignia shall be adopted including the name American Physiotherapy Association, and the same shall be trade marked with the federal government at Washington, D. C. It was also moved, seconded and carried that a pin of the approved insignia be adopted and worn on duty. The question of the design was laid on the table until the next session.

It was moved, seconded, discussed and carried that

(1) Associate members shall be graduates of medical schools conforming to the standards of the A. M. A. or any educator or scientist who is actively interested in and has contributed to the knowledge and practices of physical therapy.

(2) The standards of ethics for the American Physiotherapy Association shall be as far as possible those of the A. M. A. All members shall practice only under the prescription and direction of a licensed physician.

(3) Membership in the American Physiotherapy Association shall be confined to those engaged in the practice of physical therapy as defined in the heading of this constitution, or members of the medical profession or scientists and educators.

MORNING SESSION, JUNE 25

The first business of the day was the report of the educational committee by Miss Irvine, in it was incorporated the report of the Chicago chapter. A report of a special committee on education which had toured around the states and investigated various schools of physical therapy was read by Miss Irvine too. The recommendations of these two committees, based on their findings were presented, discussed and incorporated as the business of the meeting. It was carried that the executive committee keep itself informed of the list of foreign schools approved by the Chartered Society of Massage and Medical Gymnastics of London, England, and that this list be used as a qualification list for foreign persons applying for membership, and that the executive committee inform the chapters once a year of the schools on that list. The report of the legislative committee with recommendations was read by Miss Boxeth. The report was accepted and the meeting adjourned.

MORNING SESSION, JUNE 26

The morning's session started with the reading of a telegram from Miss Rader, one of the vice presidents, and the sending of one to her. Doctors Norman E. Titus and Wallace H. Cole were recommended and accepted for associate membership. The unfinished business from the previous session was then taken up and a motion was presented that the American Physiotherapy Association go on record as opposed to both licensure and registration for membership in the American Physiotherapy Association as a standard of recognition. It was unanimously carried and the argument is given here verbatim.

"In Chicago we investigated this problem of legislation in a fairly thorough manner, and we were informed that the American Medical Association felt decidedly that we should not attempt legislation, and they preferred we should not have registration. They felt the standards of our organization are so high that membership in the organization would be sufficient registration.

"As for legislation, the American Medical Association is a huge and powerful organization, but they have been unable in all of these years, with the money and power behind them, to obtain the kind of legislation they desire. They admittedly have failed in attaining their standards in many states.

"Our organization is one of comparatively few numbers. Any money that may be necessary will be a huge sum, and we haven't any money, and the problem of obtaining the right kind of legislation is a huge one. It means really dragging our standards through politics.

"We would have to compete with all the fads and cults in trying to obtain laws that would exclude them. We would have an enormous task, and at present we feel that it is an impossible task, and to obtain laws that are worse than none would be unfortunate.

"We have been advised it would be better for us to retain our present high standards, and may I say keep the cooperation and support of the American Medical Association. They have supported us in this way, that they are accepting, maybe not admittedly, but they really are in fact accepting our standards and membership in our organization as a basis for physiotherapy. They have already done that. They are inviting us to confer with them upon matters that concern us, and them. If we act contrary to their wishes now, possibly we will lose the cooperation we have gained."

The Chairman: "Any further discussion? May I say from the chair in discussion of this matter with Doctor Langley Porter, one of our advisory committee, his remark was, 'Stay out of politics.' That is not the opinion of our advisory committee, it is his personal opinion. The advisory committee did not meet on the subject."

Amendment to the by-laws, Article 7 was read and unanimously carried.

The amendment to the by-laws, Article 7, is to read as follows:

Committees, Section 1. There shall be the following standing committees, publicity, bureau of appointments, legislative, and education. These committees shall be composed of a chairman and a representative from each chapter. The chairman shall be appointed by the executive committee to serve while satisfactory. The chapter representatives shall be appointed by their respective chapters, to serve not less than two years.

Section 2. The duties of these committees shall be:

(A) Publicity—1. To collect and prepare for each issue of the REVIEW, a bibliography of correct literature on physiotherapy. 2. Keep a list of hospitals using physiotherapy. 3. Prepare for publication a calendar of meetings of other association of interest to the members of the American Physiotherapy Association, and send to them notices of the annual convention of this association. 4. To stimulate the circulation of the publications of the association in libraries, hospitals, and medical centers. 5. To be responsible for any other matters of publicity which further the interests of this association. 6. To exchange reports between chairman and committeemen at least quarterly, to the executive committee when required, and a full report to the annual convention.

(B) Bureau of Appointments—1. To keep a list of the members of the association, their positions, and the type of work for which each is specially qualified. 2. To place members in ethical positions. 3. To ex-

change reports between chairmen and committeemen at least quarterly, to the executive committee when required, and a full report to the annual convention.

(C) Legislative—1. To keep records and printed copies of the bills of each state, and the United States, which regulate practice of physiotherapy. 2. To gather information about the practical workings of the regulations in the several states. 3. To inquire and record what each chapter of the association has done or is doing with regard to state regulation. 4. To suggest or formulate the necessary essential factors in the regulation of the practice, which shall tend to unification of the regulations throughout the country. 5. To investigate and advise in any matters requiring legal action, concerning the American Physiotherapy Association. 6. To exchange reports between chairman and committeemen at least quarterly, to the executive committee when requested, and a full report to the annual convention.

(D) Education—1. To formulate and establish standards for the teaching of physiotherapy in schools, and special courses designed for other than the medical profession. 2. To keep on file current detailed information regarding various schools and courses in physiotherapy. 3. To investigate courses of schools applying for standardization. 4. To recommend to the executive committee for approval such schools and special courses as conform to the standards as suggested by this committee. 5. To request that the schools which comply with these standards submit a yearly application for approval. 6. To exchange reports between chairman and committeemen at least quarterly, to the executive committee when requested, and a full report to the annual convention.

It was moved, seconded and carried.

(1) That chapter constitutions be amended to comply with amendments adopted here.

(2) That the executive committee formulate a model constitution for chapters, available to any group forming a new chapter.

(3) That the Detroit chapter file a report with the executive committee incorporating the procedure, arrangements and management of this convention business; and return the report of the former host chapter.

(4) That Doctor Watkins, past president of the American Orthopedic Association, be elected an honorary member.

(5) That a committee be appointed to design the official insignia using the pin of the association as it now stands but adding the words American Physiotherapy Association around it and before final adoption submit it to the chapters for their approval.

(6) That the executive committee formulate a blank to be sent to junior members when they have completed their year of junior membership in order to have them be applicants for senior membership.

(7) That the convening body recommends that the chapters conform more rigidly to the constitution in approval of applicants for membership.

This is but a short resume of the strict business of the convention and it is impossible to give the color, warmth and glow of the personal side. The Michigan Chapter was a charming hostess and had spent untold time and effort in order to have the national meeting run smoothly. The afternoon trip to Dearborn and its museum, the clinic at Ann Arbor with the refreshing afternoon tea, the dinner at The Fox and Hounds Inn and the lingering in the dusk to hear the famous carillon are minutes long to be remembered. Nor will the banquet be forgotten as the surprise of the evening was revealed in the "model" doctor's office and physiotherapist who treated the patients while she danced nonchalantly around. The winners of the REVIEW's contest were announced by Miss Furscott and the name of the donor of the fifty dollar prize was quickly added by Doctor Watkins. The association and the REVIEW take this opportunity to express their appreciation to her. The only pleasant thing about the closing of a convention is the fervent resolve of each member to be among those present the following year. May Philadelphia greet all of the old and many more of the new friends!

President's Report

During the year 1929-1930 most of the work of the president has been through the executive committee. There were ten regular meetings of the executive committee. Innumerable informal meetings took place at which two or more members of the executive committee were present for discussion and several meetings were with Dr. Porter and Dr. Markel of the advisory committee.

The regular business of the executive committee, that is, the action on new membership, the approval of schools, the approval of bills and signing of vouchers were attended as this business came before the committee.

There were 113 new members. Eleven resigned, 32 dropped, 19 1931 members, making a total of 534, including 33 junior, 9 associate and 7 honorary members.

There were three schools approved: Michigan, Wisconsin and Boston School of Physical Education. There was one application for school approval which was denied.

The following special committees were appointed: Investigation of opinion on the name of the association, Mary McMillan, chairman. Nominating committee, Marion Sweezy, chairman. Detroit convention committee, Edna Dimens, chairman. Convention program committee: exercise, Miss Lippet; electrotherapy, Miss Hindman; thermotherapy, Miss Hazehyer; massage, Miss King; hydrotherapy, Miss Vogel; miscellaneous, Miss Holten. Special education investigation, M. I. Irvine, chairman.

The resignation of Mrs. Gassen as chairman of the legislative committee was accepted and Miss Mathea Boxeth appointed to fill her chair.

Michigan and New Jersey and Texas were organized and accepted as new chapters of the organization.

Two cases of dicipline came before the committee, which were duly investigated and disposed of at the discretion of the executive committee.

A contest for the best paper by a member of our association was inaugurated. This contest offered $50 and a life membership for the first prize, a life membership for the second prize and honorable mention. Drs. Watkins, Coulter and Titus were selected as judges. I expect to be able to announce the awards before the end of this annual convention.

On petition from the members of our association who are under civil service, the executive committee petitioned the qualification board to re-classify aides in civil service from the sub-professional to the professional and scientific service. This was refused.

A petition was made to the Council of Physical Therapy to approve our curriculum for accrediting schools of physical therapy. This was approved and published in the Journal of the A. M. A. of Feb. 8, 1930.

An invitation was received from the American Academy of Physical Therapy asking the American Physiotherapy Association to hold their meetings with the Academy. Also to appoint a standardization committee to assist in legislation. This invitation was declined, as our time and place of meeting was fixed but we offered the services of the educational and legislative committees to cooperate in standardization in legislation.

Numerous other matters have come before the executive committee, which it will be necessary to bring before this body for its vote. As these are slated as business for this session and will be included in the minutes I will not enter into them here.

This report offers me an excellent opportunity to put in writing a few extraneous thoughts which occur to me on having just completed my two year term as president of this organization.

First—I consider it a great privilege to have been president of an alive organization. I have perhaps learned more than I have added. I have learned that our members, from coast to coast, are a group of fine, gracious individuals, all working, and I say emphatically, working hard for the interests of our profession.

As I have said, it is a great honor and privilege to be given the trust of such a group.

Secondly, this gives me the opportunity to thank the officers of this association, the executive committee, the editor of the REVIEW and her staff, the standing committees and special committees for their cooperation in every point that arose for discussion or decision.

This has been one of the best, one of the most interesting two years of my life. Let me thank each and every one of you for your confidence which entrusted to me the great privilege of being president of your organization.

Respectfully submitted,

HAZEL FURSCOTT.

Secretary's Report

Madame President:

The executive committee held ten meetings during the year. The following is an outline of business finished at these meetings.

STANDING COMMITTEE APPOINTMENTS

1. Education and publicity committee, chairman, Miss Marguerite Irvine.
2. Legislative committee, chairman, Mathea Boxeth.

At the last convention Miss Eleanor Jones resigned and Mrs. Frieda Gassin was appointed in her place. After serving for a few months, Mrs. Gassin was forced to resign, because the committee work conflicted with her government position. Miss Boxeth was finally appointed as chairman of this committee.

3. Circulation manager, chairman, Miss Gertrude Beard appointed to fill Miss Mezek's place.
4. Bureau of Appointments, chairman, Miss C. Grace Courter.

Every chapter having an Appointment Bureau is requested to cooperate closely with Miss Courter, whose office is now in New York City.

SPECIAL COMMITTEE APPOINTMENTS

1. Name committee chairman, Miss Mary McMillan.
2. Detroit convention committee, chairman, Mrs. Edna Dinieus.
3. Educational committee for investigating schools, Misses Furscott, Irvine, Burrell.
4. Nominating committee, chairman, Marion Sweezy.
5. Convention program committee, section chairmen: a. Exercise, Miss Louisa Lippett; b. Electrotherapy, Miss Martha Hindman; c. Thermotherapy, Miss Ida May Hozenhyer; d. Massage, Miss Helen King; e. Hydrotherapy, Miss Emma Vogel; f. Miscellaneous, Miss Mable Holton.
6. Credentials committee, chairman, Florence Burrell.

NEW CHAPTERS ADMITTED

1. Michigan.
2. New Jersey.
3. Texas.

APPROVED SCHOOLS OF PHYSICAL THERAPY

1. Boston School of Physical Education.
2. University of Wisconsin.
3. University of Michigan.

MEMBERSHIP

New members admitted, 113.
Total membership, 515—33 Junior.

Respectfully submitted,

CHARLOTTE H. BALLARD.

Treasurer's Report

The auditor's report this year shows an increase over last year of $390 from senior dues, and $57 from junior. These amounts include some dues paid through 1931, so do not exactly tally with membership figures.

We have a total membership of 515; 33 of that number are juniors, 9 associate, and 7 honorary. We gained 113 new members in 1930, and have already 19 new ones for 1931.

The cost for the REVIEW was $764 more than last year but we took in $408 in advertisements and subscriptions independent of membership, which was $255 more than last year. Miss Beck has done very well in keeping down the cost of publishing without in the least lowering the standard of the magazine.

May I thank all of those who made the chapter and national treasurer's work less difficult by paying their dues promptly. Almost three quarters of the dues were paid up by Dec. 1. May the next treasurer have them all in by that time!

Respectfully submitted,

FLORENCE BURRELL.

AUDIT FOR YEAR ENDED APRIL 30, 1930

May 28, 1930.

Miss Hazel Furscott,
President, American Physiotherapy Association,
Fitzhugh Building, San Francisco, Calif.

Dear Madam:

We have audited the treasurer's accounts of the American Physiotherapy Association for the fiscal year ended April 30, 1930.

All receipts reported were deposited in the bank and all disbursements made by the treasurer were properly authorized. Bank balances were reconciled with the books and deposits in banks verified by confirmations received from the depositories. A summary of receipts and disbursements for the period under review is included in this report.

Very truly yours,

FARQUHAR AND MANNERS,
Certified Public Accountants.

SUMMARY OF RECEIPTS AND DISBURSEMENTS, YEAR ENDED APR. 30, 1930

Receipts:		
Membership dues:		
Senior members	$2,610.00	
Junior members	102.00	
Associate members	18.00	$2,730.00
Association REVIEW:		
Subscriptions and sales	$ 212.95	
Advertising	195.15	408.10
Fund for Dr. Beck's trip to convention		45.00
Banquet guests		7.15
Interest on savings account		14.48
Total receipts		$3,204.73
Disbursements:		
Printing REVIEW	$2,036.35	
Advertising	202.04	
Convention expense	254.86	
Traveling convention	220.55	
Postage, telephone and telegraph	69.49	
Stationery and printing	85.51	
Printing for convention	38.45	
Auditing accounts	50.00	
Repairs and rent of typewriter	26.00	
Extra help	17.00	
Miscellaneous items	50.17	
Total disbursements		3,050.42
Excess of receipts over disbursements		$ 154.31
Balance in Banks—April 30, 1929		
American Trust Co.—Oakland	$ 749.98	
Gary State Bank—Gary	1,031.52	
Total		1,781.50
Balance in Bank—April 30, 1930		
American Trust Co.—Oakland	$1,435.81	
Gary State Bank—Gary	500.00	$1,935.81

Bureau of Appointments

Beth Israel Hospital, New York, N. Y.

Madam President, Members and Friends:

I greatly regret not being able to attend the convention this year, but a recent change in positions makes this impossible. However, you will all be interested in knowing that the Bureau is steadily becoming more popular and that the cost of advertising is a good investment. Think of three California hospitals writing me when there is so much good material there; Portland, Me., also asked for help and received it. From Minnesota to Texas I have been recommending members. In all, forty hospitals are on file and two hundred names have been sent to them. They are beginning to know where to write to get *good* technicians.

Innumerable membership blanks have been sent out to those who have read our "ad" carelessly—asking for positions without being members.

Unpaid dues are keeping several from hearing about positions. In justice to those in good standing the others cannot be recommended.

Respectfully submitted,

C. GRACE COURTER,
Director, Bureau of Appointments.

June 12, 1930.

Report of Committee on Education and Publicity

This committee, at the last convention, was handed a list of schools proposing courses in physiotherapy. Questionnaires were immediately sent to these schools and a curriculum of the A. P. A. enclosed. All manner of replies were forthcoming. Some were proposing and some carrying on courses of two months, while others were proposing four year courses in conjunction with their state medical schools.

Three schools were accepted by the educational committee and their credentials passed on to the executive committee: the University of Michigan, University of Wisconsin and the Boston School of Physical Education.

Mills College submitted a curriculum of a Pre-Physiotherapy course for the advice of this committee. Recommendations were made and will be sent.

The committee, in its files, has a list of all physiotherapy schools and their curricula. We regret that our lists of accredited schools of nursing, accredited schools of physical education and of hospitals using physiotherapy, are not complete because some of our chapters have been unable to compile these in time to be included in this report. However we have the promise of these lists at an early date.

The files of this committee also have the complete bibliography of current physiotherapy literature which is for the use of any member of the organization.

The committee also submitted for approval to the executive committee an application blank for schools to be accredited by the A. P. A. This blank was accepted and printed and has been in use by the special committee on school investigation. This committee is incorporating into this report the following report submitted to it by the educational committee of the Chicago Chapter.

"REPORT OF THE COMMITTEE ON EDUCATION, AMERICAN PHYSIOTHERAPY ASSOCIATION, CHICAGO CHAPTER, JUNE 3, 1930

"During the year your committee has prepared for their files and submitted to the national committee on education a list of hospitals in Illinois having a department of physical therapy, also a list of approved schools of nursing and physical education in Illinois.

"An investigation of several unapproved schools in this locality was made. One course which was being given two evenings a week for a period of two months and whose entrance requirements were 'any intelligent girl can learn this interesting work' was being advertised in the Illinois Medical Journal. A letter of protest was sent to the Journal and the advertisement has been discontinued.

"In response to a request from one of the leading colleges for women in the country, suggestions for a pre-physiotherapy course were prepared and recommended to the college for those students wishing to prepare themselves for a course in physical therapy. The course as outlined is included in this report.

Considerable time has been spent by the committee in a study of the curriculum given in each of the approved schools. Two of the eleven schools failed to comply with the request for a schedule of hours, the nine others offer courses varying in length from four to twelve months, the total number of hours from 550 to 1411. The entrance requirements vary from one year in high school to graduate nurse or graduate in physical education. A great variation of subjects is being taught, totaling 75, with a great difference in terminology of similar subjects, for example seven different names were

applied to exercise. Owing to the inaccuracy of the information gathered it was difficult to compare the actual amount of time spent in theory, laboratory and clinical practice. As a result of this study the committee recommends that the Chicago Chapter go on record as in favor of further steps to standardize education in physical therapy and suggests the following methods:

"1. That a letter be sent to the American Medical Association and to the American College of Surgeons inquiring what educational requirements are made of physical therapy technicians employed in departments of physical therapy of standard hospitals.

"2. That a questionnaire be sent to departments of physical therapy in medical centers and such clinics, to determine where the technicians employed received their training and the amount of same.

"3. That a bulletin of information be sent to leading schools of physical education and nursing presenting the opportunities in the field of physical therapy.

"4. That a date be specified as the maximum time for the present approved schools to comply with the curriculum suggested by the association and now approved by the Council on Physical Therapy of the A. M. A. We suggest 50 per cent for 1931-32 schedule, complete for 1932-33 schedule.

"5. That the association continue the study of a standard curriculum with more uniform terminology."

The recommendations of this committee are:

1. That the chairman of the education committee of each chapter, who automatically becomes a member of the National Committee, serve for a period of not less than two years, their term to coincide with the national term of office.

2. That a mutual report between the chairman of the education committee and its members be exchanged at least quarterly.

Respectfully submitted,
MARGUERITE I. IRVINE, Chairman.
GERTRUDE BEARD
EMILY ADAMS
HANNAH HAHN, Rep. Blanche Sinn
ALICE KINGMAN
FLORENCE PHENIX, Rep. Claire Miller
MARTHA HINDMAN, Rep. Corabelle Brown.

Recommendations of special committee for investigating schools of physical therapy:

1. That schools meet the requirements of the curriculum of the A. P. A. or be dropped from the list of approved schools.

2. That a two year period be given to the schools now approved to meet our curriculum, 50 per cent in the year 1931-32 and 100 per cent in 1932-33.

3. That provision be made in the accredited curriculum of the A. P. A. for a specialized course in physical therapy during the fourth year in a university granting a B. S. degree in P. E. The required clinical practice in medical centers must be supervised by members of the A. P. A.

4. That chemistry be included in the curriculum as it now stands except in cases where college credit chemistry is offered as a prerequisite for entrance.

5. That no equivalents be allowed in the pre-requisites of any school.

6. That there be a medical director in charge of every approved school.

7. That post graduate courses be not less than 1200 hours.

8. That the term "behaviorism" be changed to read "Psychology."

9. That short courses specializing in one phase of physiotherapy shall be called special courses in that phase and shall be requested to give a certificate in that phase, not a certificate in physiotherapy and that graduating from one of these special courses shall not qualify for membership in the A. P. A.

10. That the medical director be an associate member of the A. P. A. and the chief technician an active member of the A. P. A.

11. That application blanks be sent once a year to the heads of schools for an annual checkup on their courses. Failure to comply with this shall make them liable to suspension.

Respectfully submitted,
MARGUERITE I. IRVINE, Chairman.

Report of Legislative Committee

LAWS REGULATING PHYSIOTHERAPY IN THE UNITED STATES—REPORTS RECEIVED FROM VARIOUS SECTION CHAIRMEN

CHICAGO—Miss Erma Walker. No bill regulating the practice of physiotherapy in Illinois, Tennessee, Mississippi and Alabama:

The legislative committee of the Chicago Chapter of the American Physiotherapy Association takes the following stand and recommends:

1. That the executive committee of the American Physiotherapy Association take immediate action and go on record as being opposed to both licensure and registration and for membership in the American Physiotherapy Association as a standard of recognition. (Because of our recent investigation, we believe that if we could gain the cooperation and support of the American Medical Association to our present high standards, efforts would be better expended and the results of greater value than any support obtained by state legislation, which we feel would lower said standards.)

2. That the executive committee of the American Physiotherapy Association take steps toward the protection of the name of our association through corporation.

ST. PAUL, MINN.—Miss Sarah Kolman—not heard from.

NEW YORK-NEW JERSEY—Miss Emily Griffin.

REPORT OF SECTION NO. 4 OF THE NATIONAL LEGISLATIVE COMMITTEE

This Section comprises Delaware, Maryland, New Jersey and New York, and in November, when it was formed, there was only one local chapter, New York. Members-at-large in each of the other states were asked to obtain as much information as possible from their state medical societies and from the laws of the state governing the Medical Practice Act. In every instance, with the exception of New York, there were no specific requirements for physical therapy and if it was mentioned at all it was included under the heading of all sorts of "paths" and "cults."

New York has a clause permitting the licensing of persons to practice physiotherapy "upon evidence that the applicant has satisfactorily completed an approved four-year secondary school course of study or the equivalent as determined by the commissioner and thereafter studied physiotherapy not less than four years in a school maintaining a satisfactory standard." At the time this law was passed there was no course of four

years in the state so that the law defeated itself. Both Delaware and Maryland are minus any legislation touching the subject but "the powers that be" thought it could be covered by the same rules governing "neuropatha" and such like.

As there were quite a number of members of the A. P. A. living in New Jersey they decided to unite and form a chapter mainly for the purpose of influencing legislation and registration which really amount to the same thing, for if the laws regulating registration are not satisfactory, it is not well to be registered until they are.

In New Jersey it is hoped that physical therapy be considered one-third of the trinity of medicine-surgery-physical therapy. It is felt that if a measure could be formed to include these three rather than a separate license for physical therapy, then all the members of the A. F. A. would be licensed and registered and proudly carry the letters "R. P. T." at the end of their names as the nurse does her "R. N." According to the mind of the individual, the letters could stand for "Registered Physio-Therapist" or "Registered Physicaltherapy Technician."

The legislative committee met with its advisory committee and as a result many letters were written to medical societies and councils asking for advice and cooperation. It was suggested that in each county medical society some member of the association or some friend in the society present the subject of the A. P. A. and its aims and ideals for a standardized, registered group of workers and thus prepare the soil for future legislation.

So far little of real worth has been accomplished but the ball has started rolling and the real results will come from the concerted efforts of the national legislative committee.

SOUTHERN CALIFORNIA—Miss Roen.

Consolidated Supplement to all the Codes and General Laws 1921-1925. Ch. 218. p. 3268. Drugless practitioner's certificate authorizes the holder to treat diseases, injuries, deformities or other physical or mental conditions without the use of drugs or what are known as medical preparations and without in any manner severing or penetrating any of the tissues of human beings except the severing of the umbilical cord.

Preliminary educational requirements: the same as for applicants for any form of certificate.

Professional training. A course of instruction in a legally chartered school or schools, approved by the board, covering a total of at least 4000 hours and including the following minimum requirements:

Anatomy	485 hours	Group 1
Histology	115 hours	600 hours
Elementary chemistry and toxicology	70 hours	Group 2
Physiology	200 hours	270 hours
Elementary bacteriology	40 hours	Group 3
Hygiene	45 hours	235 hours
Pathology	150 hours	
Diagnosis	370 hours	Group 4 370 hours
Manipulative and mechanical therapy	260 hours	Group 5 260 hours
Gynecology	100 hours	Group 6
Obstetrics	165 hours	165 hours.

WISCONSIN—Miss Borwell.

Wisconsin is one of the states under the definition which specifically licenses masseurs or hydrotherapists as such:

Statutes, 1927, Sec. 147, 185—License to practice massage or hydrotherapy by the board of medical examiners.

Requirements: (1) Preliminary education, graduation from accredited high school. (2) Professional education, completion in a scientific or professional school or an adequate course in physiology, descriptive anatomy, pathology and hygiene. (3) Knowledge of state health laws, and the rules and regulations of the State Board of Health relating to communicable diseases. (4) Examination in above named professional subjects by the board and in massage and hydrotherapy by a registered practitioner. (5) Fee—$20 for examination, $5 for certificate.

Authorized to practise massage or hydrotherapy or educational gymnastics, but not the treatment of a specific disease, except upon the advice of a licensed medical physician.

MICHIGAN—One of the states under the definition in which the masseur or hydrotherapist may obtain a license to practice under laws providing for limited schools of practice or drugless practice:

Compiled Laws 1915, Ch. 130—Provides that one of the ten members of the board of registration in medicine is to belong to the "physio-medical" school.

Sec. 6726 (3). Drugless treatment licensed by the board. Examination in anatomy, histology, embryology, physiology, chemistry, bacteriology, pathology, diagnosis, hygiene and public health, (equivalent to examination for medical practice in these subjects.)

Practitioner not permitted to use drugs or medicines, internally or externally, nor practise surgery or midwifery, nor to the title of doctor or professor.

INDIANA—One of the states under the definition in which masseurs and hydrotherapists would be required to hold a physician's license: *Annot. Stat. 1926, Sec. 12243.*

In addition, I have a copy of the following:

1. "Digest of the Laws of the Various States Relating to Hydrotherapy, Electrotherapy, Neurotherapy and Physiotherapy," prepared by June Lambert, Library Assistant, Legislative Reference Section, New York State Library, January, 1928.
2. Digest—Medical Blue Book of Wisconsin.
3. Pamphlet of laws of the Bureau of Nursing Education in Wisconsin, including our law 147.185.

My correspondence has included:

1. Letters to Secretaries of State in Indiana, Michigan, and Wisconsin, all replying that there is no recent legislation relating to physiotherapy and its allied branches.
2. Letters to other chapters and to Mrs. Gassin.

I have had interviews with:

1. Mr. George Crownhart, Secretary of the State Medical Association of Wisconsin.
2. Dr. Helen Denniston, one of our advisory committee.
3. The State Head of Nursing Education.

Also, in February, 1930, the masseur appointed by the State Board to examine masseurs and hydrotherapists, phoned me and stated that according to law anyone doing massage in Wisconsin would need to take the state examination in massage and hydrotherapy. I delayed making any definite answer (other than explaining the existence of our national and state organizations and their standards) until Mr. Crownhart could give us his opinion. In an interview with Mr. Crownhart in February, I included the statement that our national and state groups were considering what legislation would be advisable for our needs. This discussion and others were preliminary to the meeting of our state executive committee, held in our president's office in Milwaukee, Apr. 6, with Mr. Crownhart. He stated that physiotherapists of Wisconsin working under the direction of the medical profession were fully protected under the exist-

ing Basic Science Law and need not be subject to examination for masseurs and hydrotherapists.

In addition, he advises us as to a program of publicity to better inform the state medical profession and others employing the services of physiotherapists of the high standards of members of the A. P. A., through material to be published in the State Medical Journal. As a result, the executive committee drew up a statement notifying the Wisconsin state medical profession of a registry of physiotherapy aides with headquarters at Miss Elson's office, The Junior League Curative Work Shop in Milwaukee.

The executive committee decided to have no further discussion regarding any definite policy for state legislation until after our national legislative meeting in Detroit.

MASSACHUSETTS—Miss Mary McMillan. No law governing physiotherapy except to go in with the drugless healers.

PHILADELPHIA, PA.—Miss Rumpp.

Admission to the practice of physiotherapy in the state of Pennsylvania is granted by the State Board of Medical Education and Licensure by the issuance of a license to the candidate who passes the licensing examination and satisfies all the other legal requirements. Applicants for licenses by examination must satisfy the following: (a) Preliminary requirement. (b) Professional requirement. (c) Pass the licensing examination.

(a) Preliminary Requirement. A preliminary education prior to entering upon the study of physiotherapy of not less than a completed grammar school course, to be passed upon by the Department of Public Instruction.

(b) Professional Requirement. The satisfactory completion of a course of study consisting of the following: Massage, medical gymnastics, Swedish movements, electro-, hydro-, helio-, and thermotherapy and any branches thereof in a school approved by the State Board of Medical Education and Licensure of the Commonwealth of Pennsylvania, giving a course of practical and theoretical instruction in these branches and an approved amount of anatomy, physiology and hygiene, covering an instruction period of not less than eight consecutive months in a single calendar year; instruction in anatomy shall include not only theoretical teaching and teaching by charts but also not less than three hours each week for the full period of the course of instruction and study on wet dissected specimens of the human body, as well as not less than four hours daily of actual study and manipulation of the living human body.

(c) Examination. A candidate for admission to the licensing examination must pay a fee of $25, submit evidence, verified by oath of affirmation and satisfactory to the board that he or she (a) is 21 years of age, (b) is of good moral character, (c) is not addicted to the intemperate use of alcohol or narcotic drugs, and (d) has met the preliminary and the professional requirements as set forth above.

The examinations conducted by the board are on the subjects of anatomy, physiology, hygiene and practice. In case of failure at the first examination the applicant, after the expiration of six months and within two years, will have the privilege of a second examination by the state board without the payment of an additional fee. In case of failure in a second examination, the applicant must enter de novo and qualify under the conditions in force at the time of this application.

Time of examinations. Examinations are held during the month of July in Philadelphia and Pittsburgh, and during the month of January in Philadelphia.

Approved Schools. The school teaching physiotherapy whose graduates are admitted to Pennsylvania state examinations is Orthopedic Hospital, Philadelphia. Other schools approved on application after inspection.

Rules and Regulations of the Board.

1. No applicant will be admitted to the examination who is unable to present at the time of his application a certificate covering the required preliminary education.

2. No applicant will be admitted to the examination who is unable to present at the time of application the required certificate of professional education from an approved college.

3. Examinations are conducted by numbers, exclusive of names, and the candidate must in no part of his paper give indication as to his name or college.

4. Candidates must acquire a general grade of not less than 75 percent. A failure to obtain a grade of 50 percent in any one session will cause his rejection.

5. All examinations must be in the English language.

6. As a means of identifying applicants two unmounted finished photographs (not proofs) of each applicant must be furnished, one of which shall be certified by the dean of the college which he or she attended and the other shall be marked with the number assigned to the candidate and shall be returned to him with his card of admission. Each applicant must bring the returned photograph to the Board of Examiners on the morning on which he takes his first examination; otherwise the applicant will not be admitted to the examination.

WASHINGTON, D. C.—Mrs. Winkler. Reports that she has interviewed the personal classification board in regard to the rating of the aides in the Veterans Bureau and finds it is impossible to change the rating of the physiotherapist under the civil service, but was told that if the standards outside of the government were sufficiently raised, they would have to raise their standards.

TACOMA, WASH.—Miss Babb. Letters written to following states: Montana—no special statute designated to physiotherapy. North Dakota—No answer. South Dakota—Sending copy of public health laws which have not been received. Washington—Licensed Drugless Physicians Act, copy, the following form of certificate being issued for mechanotherapy, suggestive therapy, food science and physiotherapy. Examination shall be in anatomy, physiology, hygiene, symptomatology, urinalysis, dietetics, hydrotherapy, radiography, electrotherapy, gynocology, obstetrics, psychology, mechanical and manual manipulation. There is some allowance made for those who have been in practice prior to this act.

OHIO—Miss Wetterhouse. Letters written to following states: Georgia—No answer. Florida—No law except drugless practise. Kentucky—No law except drugless practice. Ohio—Limited Practitioners' law under which physiotherapy is grouped.

OREGON—Miss Howes. No law regulating physiotherapy. About two years ago the Oregon Chapter worked upon a tentative plan for state registration rather than legislation for license to practice. This plan was never pushed further for several reasons. At a meeting with the executive secretary of Oregon Medical Society, they were advised to wait until A. P. A. standards were better known. He proposed advertising the association through the Oregon Blue Book, which they did—year 1928. Besides stating qualifications of members, also advised such publicity as circular letters by prominent physicians stating why physiotherapy as pra-

tised by members of the A. P. A. is closely related to their profession, and asking for their support.

PROPOSED SUGGESTIONS AND QUESTIONS RECEIVED FROM VARIOUS CHAIRMEN

1. Most all agree that we take time and study the situation whether we want legislation or registration.
2. Will not registration be a great expense? Are there enough of us to carry on the work in each state?
3. Would national registration be advisable with headquarters say in Washington, D. C., with one or two branches in each state; as Association grows examinations to be held at given time (same date) at various branches. Questions to be received sealed from headquarters, and opened before class to be examined. Examination board at each branch to be appointed either from headquarters or by a local chapter.
4. Make our association with our school our standards.
5. Should we entrust our standards to politics?
6. Need of informing the medical profession of our A. G. S. and its standards by publicity through medical journals.

MATHEA BOXETH, Chairman.

APPROVED SCHOOLS OF PHYSIOTHERAPY

The New Haven School of Physiotherapy, 303 Whitney Ave., New Haven, Conn., Harry Eaton Stewart, M. D.

Philadelphia Orthopedic Hospital, 17th and Summer Sts., Philadelphia, Pa., Miss Jane M. Farrell.

Children's Hospital, Sunset and Vermont Aves., Los Angeles, Calif., Miss L. H. Graham.

Northwestern Medical School, 303 East Chicago Ave., Chicago, Ill., John S. Coulter, M. D.

Battle Creek Sanitarium, Battle Creek, Mich. (Post Graduate Course), Mrs. Mary Staines Foy, R. N.

Harvard Medical School, Longwood Ave., Boston, Mass. (Post Graduate Course), Course No. 441, Miss Janet B. Merrill.

Walter Reed General Hospital, Washington, D. C., Miss Emma Vogel.

Tacoma General Hospital, Tacoma, Washington, Miss Ruth C. Babb.

University of Michigan Hospital, Ann Arbor, Mich., Miss Mabel Holton.

University of Wisconsin Hospital, Madison, Wis., Dr. Helen Denniston.

Boston School of Physical Education, 105 South Huntington Ave., Boston, Mass., Mrs. Mary F. Stratton.

Abstracts

By John S. Coulter, M. D., Assistant Professor of Physical Therapy, Northwestern School of Medicine

Peripheral Nerve Injuries. Walter D. Abbott, M. D., Des Moines, Iowa, in Jour. Iowa State M. S., XX:6:257, June, 1930.

Post operative care. This phase of the treatment is probably the most important and certainly is the most trying for surgeon and patient. Immediately after operation the extremity is placed in splints; care must be taken that the bandages will not constrict the blood supply and the joints must have access to some motion. Adhesions must be prevented and the joint should not be continuously mobilized. It is essential that there must be close cooperation between the surgeon, masseur and patient to secure a good result.

Nutritional treatment in the form of heat, massage, electrical stimulation and re-education should begin about the tenth day and must be continued for weeks and months. Immersing the limb in a hot bath produces an excellent increase of blood supply and when trophic ulcers are present radiant heat may be used. Massage should be given ten to twenty minutes each day but it must not proceed to the extent of producing muscle pain or fatigue. It is much better to do too little than to be too zealous in the matter.

Electrical stimulation can be carried out if it is properly used in the hands of a competent therapist.

Before the function begins to return the patient should be instructed in each muscle action and must faithfully attempt to follow this line of re-education. At first the masseur will have to help the patient in working the muscles and again caution must be exerted against fatigue.

Recovery will vary with the ability of the subject to train his cortex to interpret correctly data reaching it through pathways which have been unaccustomed to carrying these new impulses. The surgeon should, if possible, supervise this long period of postoperative care and be ever on the alert to prevent the adoption of easily acquired trick movements or the entire effort will be in vain.

The Rehabilitation of the Disabled. Harry E. Mock, M. D., Chairman, Council on Physical Therapy of the American Medical Association, Chicago, in Jour. A. M. A., 95:1:31, July 5, 1930.

More and more physicians are thinking in terms of physiologic medicine, reconstructive medicine and reconstructive surgery. Hospitals are adding occupational therapy and physical therapy departments and the staffs are gradually learning to use them for the better improvement of functional results. Follow-up clinics are being added.

Gradually they have come to recognize that physical therapy and occupational therapy are adjuncts to the usual medical and surgical procedures which represent a continued interest in the patron's disability beyond the acute stage, an interest that, properly directed, will assure the greatest possible functional restoration in every disability case.

Physical Therapy in the Hospital—a Necessity, not a Luxury. Norman E. Titus, M. D., New York City, in Modern Hospital, XXXV:1:91, July, 1930.

For the past six years the members of the New York Police Department have been given physical therapy at Beekman Street Hospital and Vanderbilt Clinic under my direction. The results obtained in getting these men back on duty more quickly have evidently been so impressive that there is now in course of construction at police headquarters one of the most complete departments of physical therapy in the city. Of course the treatment that these policemen received could be given only in the out-patient department. For the general usefulness of any hospital the shorter the average length of stay of its patients, the greater the annual turn-over. Undoubtedly, physical therapy has today proved itself a distinct aid in shortening convalescence and consequently it is a necessity in the general scheme of a hospital and not a luxury. With proper cooperation of other services the department can always be made to show a profit, so that both financially and professionally it should be a help.

What Charges Shall the Physical Therapy Department Make? William Bierman, M. D., Director, Department Physical Therapy, Sydenham Hospital, New York City, in Modern Hospital, XXXIV:5, May, 1930.

From a review of the data presented it will be noted that, with reference to private patients, 12 out of 14 institutions charge from $2 to $5 for a treatment. These patients are presumably able to pay the usual medical fees; therefore, the fees charged them should be comparable to those charged outside of the hospital for similar services. For semiprivate patients, the charges made by the majority of institutions range from $2 to $3 a treatment.

The greater number of institutions charge $1 a treatment for ward patients. If the social service department finds that this charge is too much of a burden, it may recommend its removal.

Recent Advances in Light Treatment (Wounds). First International Congress of Actinology held at Paris, July 22-27, 1929. Reported by A. Bern Hirsh, M. D., New York, in International J. M. and S., 43:6:307, June, 1930.

Summary of an address by Lemariee, Clermont-Ferrand on 2,000 cases of wounds and burns treated by actinotherapy.

About two thousand cases of wounds and burns have been treated during the year which have shown the great disinfecting power and cicatrizing power of these radiations.

Small wounds, indolent wounds, contused wounds, burns, were healed in some few treatments. Extensive wounds with loss of substance (so difficult to treat), partial resection of a finger, can be treated with almost complete repair. We have obtained these results in thirty treatments of marked lacerations of the fingers that appeared at first to require exsection. We use strong doses. The wound is irradiated at 30 centimeters from the arc for a quarter of an hour each time; sometimes twice daily. The entire segment as well as the wounded portion of the member is exposed.

The scar is good, supple; the morphology is relatively normal, and mechanotherapy comes in as an aid to restore function.

Since using the treatment we have not seen pus complicate the irradiation treatment. Only stab wounds are

serious, baffling every sort of treatment. In cases of complicating lymphangitis and oedema we often associate the infrared rays with the ultraviolet. Many times we have seen extensive areas of lymphangitis give way to infrared irradiation.

Briefly the treatment by infrared and ultraviolet rays assures more rapid and better cicatrization and avoids to a great extent infection but we especially believe, having seen healing occur unattended by the loss of serious amount of substance (tissue), it demonstrates the need for greater conservatism. The finger that one believes is lost will with patience recover its shape and its function, and there is always time to sacrifice it if the treatment fails.

Influence of Irradiation on the Resistance to Infection. Wilson et al., in Progress in Orthopedic Surgery, Arch. Surg., 20:6: 1053, June, 1930.

With a view to determining the influence of irradiation on resistance to infection, Eidinow carried out experiments on animals. (See Brit. M. J., 2:293, Aug. 17, 1929.) He irradiated a group of rabbits with his special lamp (emitting infra-red, luminous and ultra-violet rays up to 2,850 angstrom units) continuously for 48 hours and then inoculated them intravenously with a broth culture of virulent staphylococci. The control animals died within 24 hours of the inoculation, while four of the 30 irradiated animals recovered, and the remaining 26 survived for an average of 7 days. Eidinow was unable to discover the mechanism of the increased resistance. Experiments indicated that the irradiation increased the hemobactericidal power but not in proportion to the general increased resistance to infection. It did not raise the rectal temperature.

The Status of Ultraviolet Ray Therapy in Diseases of the Skin. By Arthur E. Schiller, Detroit, Mich., in Radiology, XIV:6:576, June, 1930.

Lupus Vulgaris: Semon and Ormsby state it as their opinion that lupus cannot be cured by arc lamp irradiation alone, but that doubtless the mountain air and general hygienic measures constitute a large factor in the cure of lupus.

Septic Conditions: Many authorities furnish sufficient evidence that infective lesions of the skin, furunculosis, impetigo, septic wounds, and similar conditions are very favorably influenced by the use of the ultraviolet ray. This seems logical, inasmuch as both the bactericidal and the stimulative power of the ultraviolet ray are called into effect in these conditions.

Psoriasis: Some cases unquestionably clear up under intense ultraviolet therapy, and Goeckerman recommends a combination of crude coal tar and large doses of ultraviolet ray. . . . Another rather unpleasant thought is raised by the work of G. M. Findlay, who states that when mice are tarred and exposed to ultraviolet rays the period of time necessary for the induction of cancer is much shorter than when either tar or the ultraviolet ray alone is employed.

Radiodermatitis and Roentgen Telangiectasia: That the use of ultraviolet ray with, and during treatment with the x-ray would tend to increase the toleration of the skin to the x-ray has, I believe, been thoroughly disproven.

Pityriasis Versicolor: Pityriasis Rosea: Both of these conditions are, unquestionably, benefited by treatment with ultraviolet ray of sufficient intensity to cause desquamation, but here again we can raise the question and point out that pityriasis versicolor is very easily cleared up by the application of a solution of sodium hyposulphite, and that pityriasis rosea is self-limited, and will clear rapidly with any medication that will cause a mild exfoliation.

Alopecia Areata: We could not help but wonder whether in those cases in which the hair returned, if the hair might not have returned by the use of any type of stimulative treatment.

Nevus Flammeus (Port Wine Mark): Oliver and Fred Wise reported improvement, but not complete cures, using intense vesicating doses.

Seborrheic Eczema: Dermatitis Herpetiformis: Herpes Soster. So numerous are the articles written on these disease types, and so much at variance are their writers' views, that an accurate opinion can hardly be drawn as to the values.

It would seem from the literature that but very few skin diseases can be actually treated with greater benefit by the ultraviolet rays than by other measures. Those which can are the skin tuberculosis group, and the group of septic conditions, including septic wounds and ulcers. In other groups the ultraviolet ray has proven to be either a more or less indifferent agent, or at best, an adjunct to general treatment.

Ultraviolet Irradiation of Mammary Glands. Monatsschrift f. Geburt. u. Gynakol., Berlin, 84:275, March, 1930; abst. Jour. A. M. A., 94:23:1880, June 7, 1930.

Küstner and Börner used ultraviolet irradiations of the mammary glands in 21 lactating women to increase the flow of milk. Contrary to the observations of several other investigators, they did not note an increase in the flow of milk sufficiently marked and sufficiently constant to permit them to ascribe to the irradiations a galactagogue action.

Erysipelas.—Comparative Study of the More Recent Methods of Treatment. From the Departments of Roentgenology of the Minneapolis General Hospital and the University of Minnesota, and the Department of Contagious Diseases of the Minneapolis General Hospital. Walter H. Ude, M. D., and E. S. Platou, M. D., Minneapolis, in Jour. A. M. A., 95:1:1, July 5, 1930.

SUMMARY

We have made a comprehensive analysis of all the available data in 402 hospitalized cases of erysipelas. These were classified according to the method of treatment, and the data have been so arranged that a fairly accurate comparison of the results can be made.

The methods of treatment in these cases were as follows: (a) magnesium sulphate and glycerin packs; (b) roentgen irradiation; (c) ultraviolet irradiation; erysipelas antitoxin; (f) ultraviolet irradiation and antitoxin.

The newer methods of treatment have reduced the mortality rate of erysipelas approximately 44 per cent.

In cases treated by either roentgen or ultraviolet irradiation, the immediate results are exceedingly gratifying. The return to normal temperature and absence of symptoms takes place from three to four days earlier than in cases treated by the magnesium sulphate and glycerin pack method.

Ultraviolet irradiation produced a clinical arrest of the disease with the first treatment in 92 per cent of our cases.

Irradiation and antitoxin therapy definitely reduce the total duration of the disease as well as the average duration of the disease after the institution of treatment, and here also ultraviolet irradiation appears to give the best average results.

On the basis of this study we conclude that the newer methods of treatment show distinct advantages over the older methods; that the results obtained by either form of irradiation and by antitoxin are approximately the same, with slightly more favorable results in the ultraviolet group.

We further conclude on the basis of our clinical experience with the newer methods of therapy as well as on the basis of the present study that the treatment of erysipelas by ultraviolet irradiation may be advocated as a universally applicable method: (a) it is readily available in practically all communities and is devoid of danger, as contrasted with roentgen irradiation and antitoxin; (b) it usually requires only one treatment, but the treatment may be repeated several times without the least danger; (c) it is inexpensive; (d) the results are somewhat better in our hands than those of any other method of therapy.

Ultraviolet Irradiation in Erysipelas in Nurslings. Abstract in Pennsylvania M. J., XXXIII:9:631, June, 1930.

Becker calls attention to the fact that the mortality in erysipelas is inversely proportional to the age of the patient and heretofore has been extremely high in nurslings. In eight infants (aged 18 days, 20 days, 3 weeks, 6 weeks, 10 weeks, 6½ months, 9 months and 12 months) with erysipelas treated by means of ultraviolet irradiation with one and one-half times the individual erythema dose only one death occurred and that was in an infant (aged 20 days) in whom erysipelas developed following an operation for umbilical hernia and who died from septic thrombosis, peritonitis, and bronchopneumonia. In some of the patients who recovered the erysipelas was of the most malignant form.—J. A. M. A.

The Quartz Mercury Arc. Wm. T. Anderson, Jr., Ph. D., Newark, N. J., in Radiology, XV:1:109, July, 1930.

All the arcs, including the quartz mercury arc, produce a continuous spectrum, i. e., the light from them consists of every wave length from the very short ultraviolet to the long infra-red. However, not all wave lengths have equal amounts of energy: some wave lengths may possess many times the energy of their neighbors. Since the action of a wave length of light on a photographic plate is dependent largely on the intensity, a very short exposure records photographically only the more intense bands of wave lengths.

It is advisable not to judge a light source on its spectrum alone, for on this basis the ideal ultraviolet source would be the automobile spark plug operated on the automobile ignition system, which produces a better spectrogram than can be obtained by the quartz mercury arc or any of the carbon arcs.

The quantity of light energy available at each wave length is very important, and this the spectrograph ordinarily does not show.

The greatest rate of decrease in the intensity of a new lamp occurs during its first few hours of operation. The subsequent decrease in intensity is very much slower.

It is especially important that only pure liquids which leave no residue on evaporation be employed in washing burners. Many a good burner has been completely ruined through failure to observe this precaution.

The hourly cost of owning and operating an alternating current quartz mercury arc lamp, which is the more expensive type, basing the computation on a life of 2,000 hours and including interest at 6 per cent on the investment, is 22 cents on the lamp and 8 cents for electric current, making a total of 30 cents per hour.

A Statement to Manufacturers of Physical Therapy Equipment. The Council on Physical Therapy of the American Medical Association has adopted the following report, H. J. Holmquest, Secretary, in Jour. A. M. A. 94:24:1918, June 14, 1930.

It has come to the attention of the Council on Physical Therapy that certain manufacturers make unscientific and unwarranted claims in advertisements which appear in publications other than those of the American Medical Association, while advertising the same equipment conservatively in publications of the Association. The council hereby calls the attention of manufacturers of medical apparatus to the fact that all advertising must conform to the requirements of the Council if the apparatus is to remain acceptable to the Council.

The Council on Physical Therapy hereby notifies the manufacturers of physical therapy equipment that it will reject all apparatus for which, in its opinion, unwarranted and unscientific claims are made in any advertising or descriptive matter put out by the manufacturer.

The Sale of Sunshine Lamps to the Public. The Council on Physical Therapy of the American Medical Association has adopted the following report. H. J. Holmquest, Secretary, in Jour. A. M. A., 94:24:1918, June 14, 1930.

The Council on Physical Therapy has taken the stand that a sunshine lamp sold directly to the public should be so constructed that the radiant energy emitted shall not differ essentially from sunlight. Furthermore, the advertising and descriptive matter pertaining to such lamp should contain no curative claims nor mention of specific diseases.

In general the Council believes that more conservative claims for the necessity of strong sunlight should be made by the manufacturers of lamps for home use, such statements being restricted to those which can be justified by conclusive scientific evidence. The Council is not convinced that human beings in health require the great amount of ultraviolet energy one is led to believe in the case from the advertising and descriptive matter pertaining to some of the so-called sunlamps sold to the public.

A number of the more responsible manufacturers have fully agreed with the opinion of the Council. The emission characteristics of their lamps are in essential agreement with the requirements established by the Council, and in their advertisements they carefully avoid making curative claims. Furthermore, in these advertisements attention is called to the advisability of consulting one's physician before exposing oneself to ultraviolet radiation.

From time to time the Council will publish reports on the sunlamps which conform to the requirements established by the Council. These reports will describe in detail the construction and operation of the lamps and will contain complete information on their electrical and emission characteristics.

Thermal Effects of Diathermy. Allan Hemingway, Ph. D., Departments of Physics and Biophysics and Physiological Chemistry, Univ. of Minnesota, Minneapolis, in Radiology, XIV:2:99, February, 1930.

The high frequency resistance of the human body, using diathermy electrodes placed at different parts of the body where diathermy treatment is given, has been measured, using a high frequency bridge with a heterodyne method of detection. The high frequency

resistance has been found to vary from 20 to 200 ohms, with a low resistance, 20 to 40 ohms, through the body, and with higher resistances, 60 to 200 ohms, for the limbs and joints.

Use of Paper Sheets for Treatment Tables. Being part of a list of "practical pointers to hospital administrators concerning the equipment and operation of a physical therapy department" given in a talk by Dr. Norman E. Titus at the 1930 New York state hospital meeting. See Hospital Management, xxix:6:60, June, 1930.

Suggestion was in regard to the use of paper sheets for treatment tables. Dr. Titus said he had found one firm that would supply him with paper sheets, Will Ross, Milwaukee, Wis. These sheets are obtainable in pads of 25 and the patient is instructed to tear off the sheet he has used from the pad on top of the table after treatment. He said that these sheets were more convenient and considerably more economical than the use of linen. Dr. Titus figured the saving on the paper sheets over linen ones on the basis of a cost of about five cents a sheet, including initial investment, replacement, laundering, handling, etc., and asserted that the paper sheets costs 3 cents each.

Institutional Physical Therapy as an Adjunct in the Treatment of Hypertension. R. M. Watkins, M. D., Cleveland, in Ohio State M. J., XXVI:7:604, July, 1930.

In our series of Woman's Hospital cases, the majority have been treated by means of the electric cabinet bath for the promotion of skin elimination. Massage and hydrotherapy in connection with the above have been used frequently.

We may state that (1) each patient felt better after the series of treatments, and the longer the series the greater feeling of improvement was noted; (2) systolic blood pressure lowered in each case after treatment, the variation being from 10 to 45 points; (3) the average diastolic readings were appreciably lowered in all but three cases, the decrease ranging from 0 to 20 m. m. of mercury; (4) less advantage from treatment was derived by patients who suffered from arteriosclerosis than by those in whom the condition was primary essential hypertension.

We must conclude that physical measures are valuable adjuncts to our methods of treatment of high blood pressure.

Hydrotherapy in the Treatment of Syphilis. Thomas N. Black, M. D., and W. M. Blaskshare, M. D., Hot Springs National Park, Arkansas, in Tri-State M. J., 2:6:333, June, 1930.

Fever therapy by bathing is contra-indicated in certain types of cardio-renal cases especially cardiac insufficiency and aortitis. Hypertension from arteriosclerosis probably would not fare well in a very hot bath, and all cases of malignancy and tuberculosis should not be subjected to this type of therapy.

In the treatment of our cases we find it an easy matter to develop daily temperatures of 102 to 103 degrees F. Much higher temperatures have been obtained experimentally, but we find that fever above 103 degrees F. probably is too strenuous and leaves the patient in an exhausted state. We believe daily elevations of between 102 and 103 degrees sufficient.

The bathing technique is important. Gradual elevations during the first week of treatment should bring the patient to the higher temperatures. We strive to produce a sublingual temperature of 100 degrees the first day; and each day following we go farther at the rate of about a half degree. Thus at the end of one week we reach the maximum amount of fever. We find that in most cases the tube temperature is 104 degrees when the sublingual temperature reaches 103 degrees. Thirty to forty-five minutes in the tub produces the fever, then the patient is removed to the hot room where the fever is maintained for half an hour then to the second cooling room until the fever is practically gone.

In all, the fever lasts about two hours, reaching its maximum while in the hot room. It is our belief that the rapid elevation followed by rapid fall in temperature influences the life of the treponema more than does prolonged fever. The organism meets with a shock upon the rise and another shock upon the fall. In this state of disturbed equilibrium, the organism falls an easier prey to antiluetic medication.

PHYSIOTHERAPY COURSES

Tacoma General Hospital

THE FANNIE C. PADDOCK MEMORIAL
TACOMA, WASHINGTON

Course in Physical Therapy

Open to graduates of standard schools of Physical Education
Sept. 3 to Aug. 1

Instruction by Staff Doctors, Internes and members of the teaching faculty of the Hospital

Fee $200.00 Make Applications to Ruth C. Babb

PHYSIOTHERAPY AND X-RAY COURSES

CHILDREN'S HOSPITAL

4616 Sunset Blvd,, Los Angeles, California

Physiotherapy Courses given by the Doctors on the Hospital Staff and the Director of Physiotherapy. X-Ray Course given by the Supervisor of X-Ray Department and under the Supervision of the Director of X-Ray.

COURSE No. 1: For Graduate Nurses and Physical Education students: Sept. 12, 1930-Sept, 12, 1931. Fee $85.00.

COURSE No. 2: For those with no previous training but holding a High School diploma or its equivalent. Sept. 12, 1930 to March 12, 1932. Fee $125.00.

COURSE No. 3: An elective course in X-ray for students of Courses 1 and 2, requiring an additional three months. Fee $50.00.

Training given in the treatment of all Orthopedic cases.

Apply to: MISS LILY H. GRAHAM, Director, Physiotherapy Dept., Children's Hospital, Los Angeles, California.

COURSE IN PHYSIOTHERAPY

OCT. 1, 1930 - JUNE 1, 1931

An Eight Months' Thorough Course in Massage,
Electro- Mechano- Hydro- and Thermotherapy

Excellent opportunity for Clinical and Bed-Side Practice.
Prepares for Pennsylvania State Board Examinations.

Circulars on Request

Philadelphia Orthopedic Hospital

and

Infirmary for Nervous Diseases

17th and Summer Streets **Philadelphia, Pa.**